Wanting: no. 1, vol. 1.

...oducts

Vol. I. LOUISVILLE, KY., MAY, 1902. No. 2.

THE ASSOCIATION IDEA.

The secret of healthful life in any trade is plain as daylight to the intelligent manufacturer or dealer, and that is, a good strong organization.

The Interstate Builders' Supply Association, which is composed of the largest and most influential builders' supply men of the States of Ohio, Michigan, Pennsylvania and Indiana, is an example in point, and too much can not be said of the broad-gauged qualities of the men who have made this association what it is.

The object of the association is to make an intelligent effort to help themselves, and in selecting their officers after two years of work, we find, John A. Kling, Cleveland Builders' Supply Co., Cleveland, Ohio, president; C. E. McCammon, L. H. McCammon Bros., Cincinnati, Ohio, vice president; J. N. Thayer, O. C. Thayer & Sons, Erie, Pa., treasurer, and Richard Kind, The Toledo Builders' Supply Co., Toledo, Ohio, secretary. The Executive Committee is composed of the president and secretary, and the following members of the association: Robert Lake, Jackson, Mich.; A. B. Meyer, Indianapolis, Ind.; G. H. Little, Toledo, Ohio.

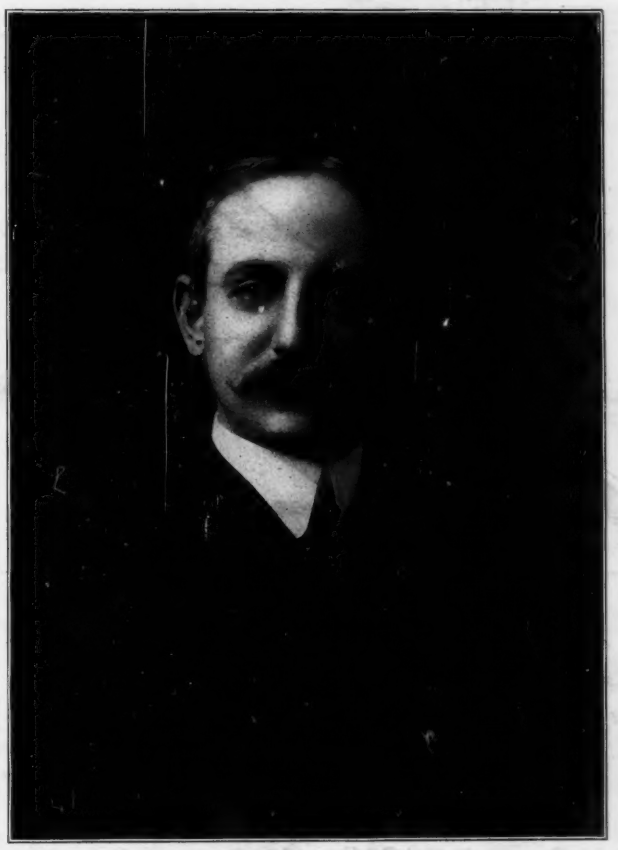
We have taken some liberties on this page with both the president and the secretary, by using a picture of the first named gentleman, and a paper written by the latter on associated effort, which is a hobby with him.

The substantial progressive efforts put forth by these gentlemen have borne fruit, and the paper given on this page will convince you that it is a fact.

President Kling is liked by his associates, and co-operates with them from day to day, a strong man at the head of a strong business and president of a good association.

His interests in Ohio and Pennsylvania also evidence his standing in the community, he being connected with a large number of financial institutions, as well as giving most of his time to the supply business. He, like Secretary Kind, is young in years, but old in experience, and level-headed in his efforts. The up-to-date men in the builders' supply trade can not afford to stand back, but should co-operate with this, the Interstate Builders' Supply Association. The following paper, which was read by Secretary Kind at the last annual meeting, presents the association idea in a logical manner:

Nearly every man has a hobby. Mine is and has been the association, not because it will make me a rich man, but because I am convinced that ultimately it will place the legitimate dealer in a position where he will not depend on the whims and sometimes the unscrupulous actions of a broker and inconsiderate manufacturer or his agent. Please understand that I do not include every manufacturer,, and to their credit be it said, that the majority do co-operate with the dealer and assist him; I refer to the other class, which I am sorry to say, is met only too frequently.



JOHN A. KLING.

About two and a half years ago the intended actions of would-be magnates in the manufacturing line, set some dealers thinking and when they came together at Cleveland, Ohio, they found that they suffered of the same evil, whether they carried on business in the State of Pennsylvania, Ohio, Michigan or any other part of the country.

On that occasion I stated that our class of business was about the only one that had not learned to co-operate. The grocer, the butcher, the baker, the saloonkeeper, the beerbrewer, the lawyer, the minister, the mechanic, the laborer, the politician, have long ago learned that co-operation among their craft or calling is unavoidably necessary in the present age, and so we see that the representatives of such callings meet from time to time, get acquainted with each other and each other's ideas, and adopt means which are essential for their own good.

Does a dealer in building material require less brains to carry on business than any of those named above? If I could answer that question with yes, I would not have advocated the formation of this association.

The child was born on that occasion at Cleveland, Ohio, and christened. It is now a healthy boy, asking its parents to do away with his knee pants and give him trousers instead. You who are the boy's godfathers and parents should see that his wish is fulfilled and that his trousers are made of the right material, so they will not tear the first time the boy plays football or slides down a hill.

Having had the good (or bad) luck of being the secretary, I naturally had occasion to note the various ideas and sentiments of the men engaged in handling building material.

Very frequently I was asked: "Where are your benefits?" and at all times I replied that they are two different kinds: "Financial and moral."

Certain concessions made to our membership have returned to their pockets, according to my record, more than the total amount of membership fee paid to the treasurer.

During my twenty years connection with this line of business, I have experienced that representatives of manufacturers frequently quote one firm a lower price than another. In one case I found that the traveling gentleman had been on a spree during the night and he had to make up the extraordinary expenses. He did it by advancing the price of his goods the next morning.

Very frequently I communicate with our members about quotations made by traveling men, and I frankly confess that such information has served me in a good many instances to obtain better prices than those originally quoted.

Our members should frequently correspond with each other and compare notes. A financial benefit will surely follow.

Frequently we are asked to quote prices, and possibly make a sale afterward, to a contractor in a locality where a member of this association is located. In all cases such inquiry was referred

[CONTINUED ON PAGE 23.]

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CHAS. ALLIS, *President.* E. H. BALL, *Secretary.* B. F. HORSTING, *Treasurer.*

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Leather Belting Specialists.

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"The Barrel & Box"

LOUISVILLE, KY.

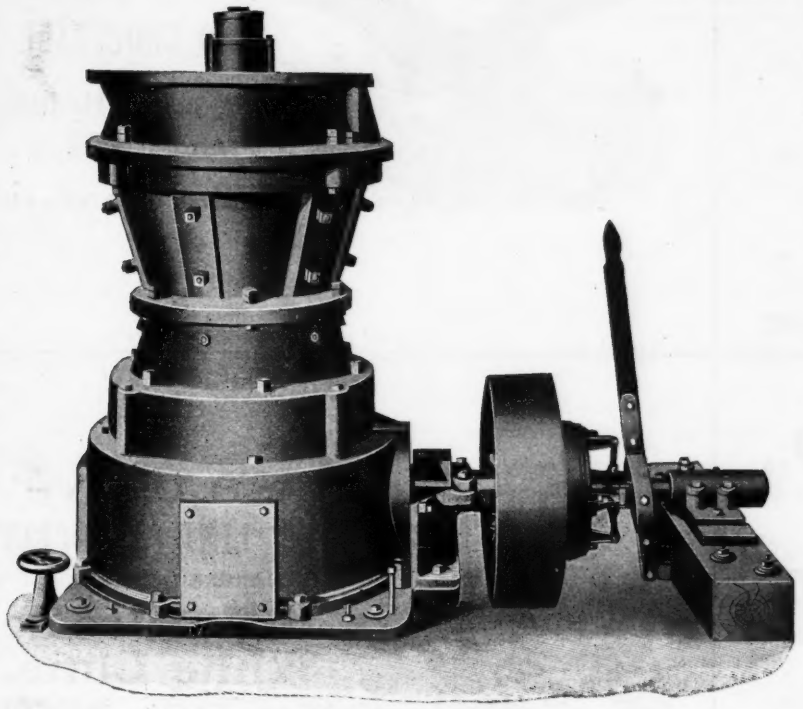
Will tell where to buy Cooperage and Cooperage Material, how to manufacture Barrels, the Cost, Etc.

100 Pages Monthly.

$1.50 Per Annum. We Want Your Subscription.

Tell 'em you saw it in ROCK PRODUCTS.

Crushes Large Rocks



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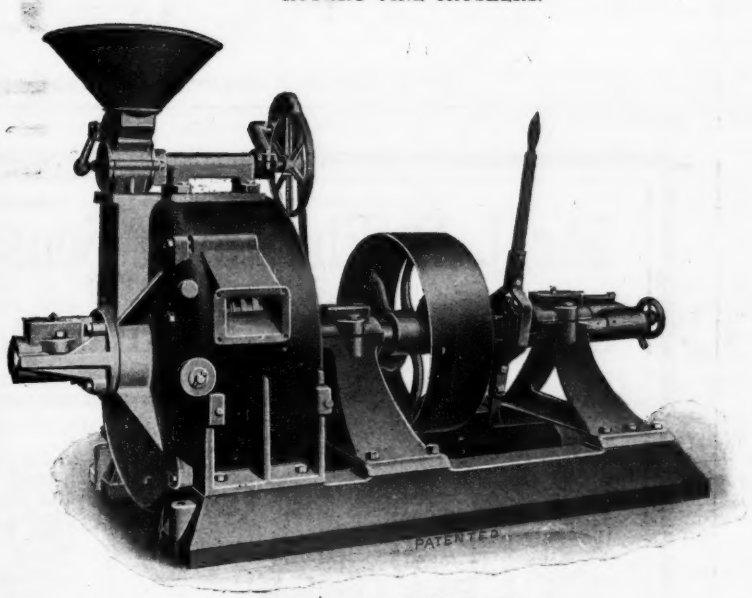
ROTARY FINE CRUSHERS.

TO 1/8—INCH

CAPACITY, From 6 to 15 TONS PER HOUR.

Especially built to crush fine for pulverizing machines. This is the largest and most powerful fine crusher built.

THE FASTEST FINE GRINDER.



36-INCH VERTICAL EMERY MILL.

CAPACITY 4 TO 7 TONS PER HOUR.

NO SCREENS.

Will reduce nearly any material below Quartz in hardness to a powder. Hundreds in use. Best of references available.

These two machines (Rotary Crusher and Vertical Mill) form the most economical plant that can be built for reducing nearly any material from rocks as large as one's head to 100 mesh or coarser. Complete, ready for belt when shipped

UNEQUALED FOR

Limestone, Lime, Gypsum, Coal, Clay, Talc, Phosphate, Shale, Cement, etc.

Send for our illustrated circular describing a long list of Fine Crushers and Grinders, including our well-known Roll Jaw Fine Crushers, which reduce the hardest rocks to ¼-inch - no screens. Centrifugal Crushing Rolls having three times the capacity of common Rolls. Toggle Separator which screens from ¼-inch to 200 mesh, etc. etc.

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HARRISON SUPPLY COMPANY,

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FOR

Sawing and Rubbing Granite, Freestone and Marble.

Warranted Superior to all Other Brands.
A Large Stock Constantly on Hand

ALSO

Carborundum, Emery, Puttypowder, Etc.

SUPPLIES OF ALL KINDS FOR

GRANITE POLISHERS.

Every hand polisher of Granite and Marble should write for information regarding our "Combination Box."

SAMPLES AND PRICES UPON APPLICATION.

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MAKERS OF THE FAMOUS BANNER BRAND OF

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THE GORDON FOUNDRY & MACHINE CO.

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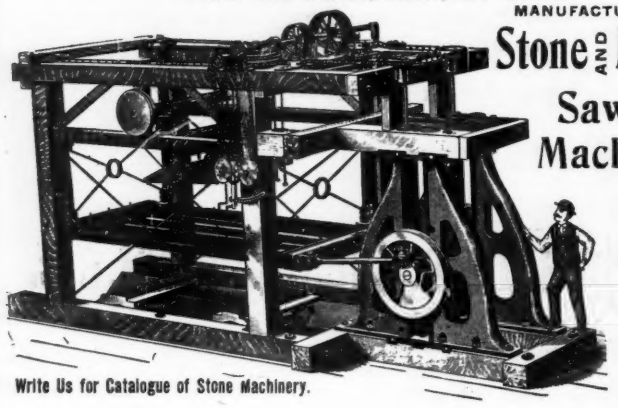
MANUFACTURERS OF

Stone AND Marble Saw Mill Machinery,



Derricks and Quarry Hoists, Etc.

Write Us for Catalogue of Stone Machinery.

The J. B. Ehrsam & Sons Manufacturing Company.

Builders of Complete Gypsum and Cement Plaster Mills, Rock Crushers, Calcining Kettles, Plaster Mixers, Hair Pickers, Elevating and Conveying Machinery, Power Transmitting Machinery of all kinds.

ENTERPRISE, KANSAS.

Rock Products

THE FRANCIS PUBLISHING CO.,
Publishers.

E. H. DEFEBAUGH,.....*President and Manager.*
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A monthly trade journal devoted to the interests of the manufacturers and dealers in rock products and kindred lines, including Lime, Cement, Salt, Sand, Slate, Granite, Marble, Sandstone, Grindstones, Artificial Stone, Emery Stone, Quarries, Monuments, Manganese, Asphalt, Phosphates, Plaster, Terra Cotta, Roofing and Roofing Tile, Coal, Oil, Mineral Wool, Brick, etc.

The mission of ROCK PRODUCTS is to serve the trade in any and every honorable way possible, to promote better profits and make life more pleasant for those engaged in the business to which it caters. With this end in view, criticism is courted, and all are invited to use its columns to further ideas and suggestions for the good of the trade. The office, too, is at the service of the constituents of this paper; so when you want to buy or sell, or merely ask a question, write, and when you are in town, call and make it your headquarters.

"TELL 'EM YOU SAW IT IN ROCK PRODUCTS."

SUBSCRIPTION RATES, $1.00 per annum, postpaid anywhere in the United States, Canada or Mexico; $1.50 elsewhere in the Postal Union. Single copies, 10 cents.

ADVERTISING RATES will be furnished on application.

ADDRESS ALL COMMUNICATIONS TO
THE FRANCIS PUBLISHING COMPANY,
411 Columbia Building, Louisville, Kentucky.

LOUISVILLE, KY., MAY, 1902.

Organized Effort.

The individual effort among those working in rock products we find largely up-to-date. There are a few mossbacks scattered around who have been prosperous and care not for more profit, but they are the exceptions. But, while organized effort seems to flourish in many sections, there is still plenty of opportunities for the co-operation of those in each particular line of trade. To promote intelligent methods in their operations there is a greater need for national organization than in any craft we have ever known. The individual effort is good, but the co-operative effort in addition would be still better.

ROCK PRODUCTS is ever glad to promote the interests of the trade in any way possible, and this is one of the ways we can intelligently strengthen your hands by bringing you together. A long number of years' experience in promoting other crafts has taught somewhat of how to steer clear of the rocks. ROCK PRODUCTS would be glad to individually promote any effort in your behalf, and we will have some suggestions to make to you by mail as to national organizations. We trust that you will not consider that we are prying into your business. We don't wish to do this, but we court your confidence and we assure you of its proper reception. No matter how successful you have been, talking it over with a competitor will help you. These are the days when new appliances and methods are essential to continued success.

An exchange of views by members of the craft, whether they are located in the West, East, North or South, will be an assistance, and promote pleasanter business relations. We trust you will co-operate with ROCK PRODUCTS in these efforts to aid bettered conditions in your craft, and we are sure results will be found satisfactory.

IN looking over the lime field in one section, it was noticed that only about 60 per cent. of the kilns are being operated, which means 40 per cent. more capacity than demand for lime. This makes a serious situation, unless producers are co-operating, meeting together, having a minimum price, working together, not over-reaching in the other fellow's customers, not taking in everything the customer says about the other fellow's price, but actually knowing what a competitor is quoting, and then meeting him if it is practical, rather than leaping in the dark and helping the customer to cut the prices down to where there is not a cent a barrel profit in selling lime. It is so much easier to work in harmony with your competitor, and having a basis of selling your product, and not deviating from it. If the other fellow is getting your trade away, go and see him and talk it over. Get together rather than farther apart.

THE call for plaster is immense.

THIS year promises to be a record-breaker in the cement business.

THE trade prospects are excellent in all lines of building material.

HAS it been decided for good and all that salt or salt water should not be used in mixing cement?

THERE is hardly a week goes by but what we hear of some new undertaking in the way of manufacturing artificial stone.

THE export business in salt from San Francisco is quite an item, but the imports received at New York considerably overshadow it.

A DROP of $1.00 in price is reported in coarse rock salt at Salt Lake City, which may be nice for the consumer, but how about the producer?

REPORTS from Eastern Pennsylvania say that the cement business has never been as brisk nor as large in volume in that section as it is this season.

THE conditions of the surface in sand for concrete is more important than the size of the grains, but that is no reason for not using the best size for the work in hand if it is available.

THERE is nothing that is more essential to keep in mind than the fact that you are running your business to make money, and when competition runs prices so low that you are not making a fair profit, it is time to go see your competitor and talk it over.

IT has been pointed out that where gravel is not available for roadmaking, that clay, by burning, can be made to serve almost equally as well as gravel, and thus the very material that makes the worst mud in roads can be made to serve as a preventive of it.

THE objection to making a low price on anything does not end with the transaction in hand, for the figures in such a case will forever after be pointed out when an effort is made to get a better price. Some of the paving-stone people are having an experience along this line now.

INASMUCH as oil makes an ideal fuel for burning cement, the cement men seeking to develop properties in the South may have something interesting for the oil men down there—that is, when the oil men get down to business in good shape and quit expending so much energy in floating oil stock.

THE good-roads idea is gaining ground right along, and we are pleased to note that the Government Road Office finds the macadam road superior to all others. This is a wise finding, and the beauty of it is that it means more business for the rock product industries, and also for the machinery and supply men in this line.

Tell 'em you saw it in ROCK PRODUCTS.

THE railroads advertise "Stone ballast—no dust." That's the proper cry, too, but the cry of ROCK PRODUCTS is for them to increase the stone ballast business, and thus make more "dust" for the stone men.

THE demand for brick continues very active, many localities reporting a supply inadequate for the call, and there is apparently nothing in the way of a very prosperous year in the brick business in all lines.

WITH this issue we start a department for the retail dealers in building material, and we will be pleased to have all our readers in that line take a personal interest in that department. Tell us about new wrinkles you have discovered, or, if there is anything troubling you, tell us about that, and maybe you can hear something to your advantage.

A PROMINENT factor in the lime business speaks as follows of the outlook for the season: "The prospects were never better for a great business during this year, and we are getting ready to take care of our customers by storing enough lime, so that when the scarcity comes, which will probably follow the large demand, we will be in position to give our trade the same attention as heretofore."

REPORTS from Bedford, Ind., say that the owners of the stone quarries there have voluntarily increased the pay of the men. That's the kind of business we like to read about, and any man who has been in working harness knows how nice it feels to get an advance without asking for it. We hope the trade will prosper so that this kind of thing will be the rule instead of the exception—and then we will forget all about such things as strikes.

SPEAKING of the captains of industries, it is pleasant to see that the leading magazines of the country are beginning to give these men the place in current history they have long deserved. ROCK PRODUCTS, as the readers know, started in on the platform that the Captains of Industry deserve more prominence in history, and it is the intention to continue this policy by devoting the front page space each month to industrial captains and others who have contributed largely to industrial progress.

A FAIR price for any article hurts no man, but when you stray very far in either direction from the fair-price basis it is likely to harm all concerned. There is small need to point out how a producer may be hurt by a price that is too low, but some may forget that too high a price checks trade and turns it to other lines of material, while it induces new industries to enter the field, and the invariable result is a period of depression following one of extremely high prices. A fair price is the thing to aim at in any line, and when that is not easily obtained the best way to get it is by associated effort.

WE all know that salt has many uses, for we see it before us in various ways every day, but it is in order to see if its use can not be increased in various lines that will permit of development. We know it enters to an extent in fertilizing land, but is it used as extensively as it might be? It is said that salt is a good agent with which to allay dust, and we know it will assist in putting out a fire, and there are various other lines which may sound as visionary at first as seeking to sprinkle salt on the proverbial bird's tail, but which will bear investigation for the sake of pushing the use of this material.

LETTERS FROM THE TRADE.

Have Re-Equipped for Clay Products.

The Akron Vitrified Clay Mfg. Co., Akron, Ohio.—We have recently re-equipped our factory at Tallmadge, Ohio, for the manufacture of clay products, such as drain tile, hollow building brick, hollow blocks, book tile, roofing tile, etc. Our products are made from the red or rusty shale clay and are thoroughly vitrified.

Announce Change in Firm.

The Strunk-Meyer Lime Co., Cold Springs, Ohio.—We desire to announce to the trade that the estate of the late Simon H. Strunk has purchased the interests of Mr. Herbert H. Moores in the firm of Moores & Co., and has now associated in business with Mr. John A. Meyer, and they will conduct the business and plant of Moores & Co. under the new firm name and style of The Strunk-Meyer Lime Co. It shall be the aim of the new company to continue the manufacture of the same high grade "wood-burned" Peerless Springfield Lime as in the past, and gives its best attention to the prompt filling of all orders and quick service. As jobbers of cements, plasters, sewer pipe, hair, mortar stains, white sand, and all building materials, we shall handle nothing but that which is standard and strictly first quality. With the latest improved quarry machinery and kilns, we have a capacity of ten cars of Peerless wood-burned lime every twenty-four hours, which we are prepared to ship promptly on notice, either in bulk or in new first-class barrels.

Have Built a New Plaster Mill.

Michigan Gypsum Co., Grand Rapids, Mich.—In reply to your postal, addressed to the Alabastine Co., of which we are the Plaster Sales department, we have just completed a new brick and iron mill with 150 tons per ten hours capacity, to replace the one destroyed by fire last fall. We have all the orders that we can fill and the prospects, as reported by our representatives, are for the year fully as good in the building line as last.

Changes in Firm's Personnel.

Rockdale Lime Co., Tom's Brook, Va.—Mr. J. C. Paxton, of Indian Rock, Va., has bought the business of the Rockdale Lime Co., Tom's Brook, Va., consisting of the lime plant, a large store and six dwelling houses, and the business will be continued under the management of Mr. M. L. Bauserman, with Mr. J. F. Bushong in charge of the store. The firm name will continue the same.

Have Bought Phosphate Properties.

Virginia-Carolina Chemical Co., Richmond, Va.—We have recently bought the properties of the Howard Phosphate Co. and the Ridley Phosphate Co., and will operate them. This is no new undertaking with us, however, as we control and operate phosphate fields both in Tennessee and South Carolina.

Business Very Good.

Kentucky and Indiana Cement Co., Jeffersonville, Ind.—Business in our line is very good, prospects being extra good this season.

Wants to Find Southern Red Granite.

W. M. White, Gastonia, N. C.—I am in the granite and monument business, and as you are speaking of the knotty problems in the quarry, I will say the only knotty problem in the quarry for me just now is how to get a good imitation in the rough for a small obelisk monumpent. I am under contract to build in Red Quincy or Braintree granite. I learned that the quarries here have suspended, so I can not get the rough stock. It seems to me that ROCK PRODUCTS will be doing a good thing to find a quarry of fine red granite in the South or middle West. I do not know of a single quarry of it nearer than Minnesota or Wisconsin. A little later in the season I expect to put in a gasoline engine of 6 or 8 h. p. and probably a 5-ton traveling crane.

Improving Shipping Facilities.

Akron Cement Works, Akron, N. Y.—The business outlook here is very bright at present, and we are improving our facilities by running a switch 4,000 ft. to connect with the West Shore Railway, thereby giving us better shipping accommodations. We have recently added a large tube mill to our equipment, and are very much pleased with its work. We also enlarged our stock bins during the past year, and can now carry 150,000 barrels in stock. Our superintendent, W. E. Patch, is a wide-awake, up-to-date, practical man, and under his management the business simply has to move on.

Have a Patent Lime-Burning Process.

O'Connell & Hillery Lime and Marble Dust Co., 647 West 131st Street, New York, N. Y.—We wish to say to you about the burning of lime that we have a patent on the process for lime burning that saves about 20 per cent. In this process, which uses soft coal and crude oil, the same fuel that I use in making lime, I also make steam with for the steam blowers and other purposes outside without any additional cost. From this you can readily see how we can cut down our manufacturing expenses to a very low figure. This patent belongs personally to James O'Connell, president and treasurer of the company. We have this process in operation at our plant at Tuckahoe, and at the James O'Connell Lime Co.'s plant at White Plains, and we consider it the cheapest and best process now in operation.

A Recipe for Cleaning Old Stone.

Jerry Hess, McGaheysville, Va.—(tombstones and monuments).—I am only a little one-horse marble dealer off here in Virginia, but I am pleased with your paper, and would be glad to exchange ideas with others through its columns; and as there is frequently some one inquiring about how to clean marble, such as old tombstones that have become tarnished and moss-grown, I offer the following, which has seemed to give best results: Dissolve two pounds of potash of lye in one gallon of soft water, and add two pounds of kitchen soda and two pounds of best lime. Stir well and apply with corn broom. Let it remain for fifteen or twenty-four hours; then rub all smooth parts well with pumice, and clean the lettering with a stubby corn broom. This is a cheap preparation and can be used freely, though in some cases it may call for a second application; but I have found it will clean headstones that were extremely dim with age. One should use pleny of water in rinsing off, and should keep this liquid off the naked hands.

Outlook for Marble Fair.

C. D. Schafer, Gainesville, Fla.—I am in the marble business, and the business outlook is fair; but just now the dull season is at hand.

Have Plenty of Orders for Lime.

Ladd Lime Works, Cartersville, Ga.—Trade conditions are fair with us and orders are plentiful. We will do some improving at our plant during the summer.

Fair Prospects for Trade.

Schwyz Manufacturing Co., Williamsburg, Pa.—Trade prospects are good in this locality, but we will do very little improving this season, as our plant is a new one.

Fair in South Carolina.

Beverly Granite Co., Beverly, S. C.—Business prospects for 1902 are very fair with us, but we do not contemplate adding anything to our plant.

Expects an Increase of Business.

J. B. H. Newton, Fulton, Ky.—I find the trade very good in my line—marble—and I expect to increase my business.

Moderately Good.

Covington Marble Works, Covington, Tenn.—Business in our line is only moderately good, on account of the drought last year and consequent short crops, and the prospects for this year are not very bright. We will likely add a granite polishing machine and a circular cut-off saw to our plant this year. We just put in granite working machinery in February.

Trade Is Very Good.

S. S. Towner, Byron Center, Mich.—Business is very good in all our lines.

Looks Prosperous.

The Greenville Stone Co., Greenville, Pa.—Business in our line looks very prosperous this year.

Tell 'em you saw it in ROCK PRODUCTS.

Dull in Alabama.

C. S. Freeman, Scottsboro, Ala.—Trade here is dull, and I think it will be until fall; consequently, we will not add any machinery, at least for a while.

Likes the Paper.

Lewis Peach, Fayetteville, Tenn.—I congratulate you on the appearance of your first issue, and I hope you will meet with the co-operation of the trade, and will not only be able to maintain, but improve each issue. I have just sold to junk dealers, for scrap iron, a gang saw machine that cost me over $600.00, on which I realized less than $50.00, and this machine has not been in active use one month. I wish you success with your new paper.

The Southern Lime Outlook.

Standard Lime Co., Kendrick, Fla.—The outlook in the lime business here is not as bright as it was last year. We doubled our capacity last year, and from the present outlook, we will not add anything to our equipment this season.

Marble Trade Good.

The Cooper Marble Co., Cooper Tex.—The business outlook is good here, and we contemplate doubling our force by September 1. ROCK PRODUCTS is an excellent paper, and should be in the hands of every dealer.

Better Than Last Year.

The D. G. Statler Co., Piqua, Ohio.—We are producing 20 per cent. more stone a month than we did last year, and the outlook for trade is excellent. We may make some changes in our plant to keep up with the increased business.

Affected By the Weather.

The Ash Grove White Lime Association, Ash Grove, Mo.—Our lime business has been very good this spring. It has eased up a little, however, on account of the lack of rain in the country west of us. In this immediate neighborhood we have had abundance of rain in the last few days.

FROM THE MOUND CITY.

ST. LOUIS, Mo., April 29.—The reception accorded the first issue of ROCK PRODUCTS in this section was most flattering, and nearly everybody has something nice to say of the initial number.

Said a prominent Mound City man the other day: "Yes, I have looked over ROCK PRODUCTS, and while there are journals already devoted to certain phases of the trade, if you cover the entire field as thoroughly as in your first number, and keep it up to that standard, your paper ought to be a 'go.'"

I told him that it wasn't any longer a question of its "going"—but of how large it would go, and that each succeeding issue would be better than the last.

One of the leading industries of the country, with headquarters in St. Louis, is the Western Rock Salt Co. The mines of this company are located at Lyons and Kanopolis, Kan., and the salt is brought up from a depth of 1,000 ft., 99 per cent. pure. The temperature of the mine at this depth is from 60 to 70 degrees Fahrenheit, and many of the miners prefer to remain down in the mild even temperature of the mines continuously, than to subject themselves to the variations of the Kansas climate. The salt is brought up in lumps of from 25 to 200 pounds in weight, and contrary to the popular impression, it is very hard, and after being blasted, has to be broken with picks and chisels.

Mr. J. H. Hogsett, who by the way, is a Kentuckian, is the secretary-treasurer of the Western Rock Salt Co., and he has just issued several attractive little booklets showing the many uses to which rock salt is put, and indicating the advantages of Kansas rock salt. He reports the demand good, and says shipments continue fair, but the market is unsettled, and the tendency is toward lower prices owing to active competition.

Mr. A. H. Mynders, of the Rogers Salt Co., also reports business good, but thinks there may be a still further decline in prices.

The Jas. F. Ewing Salt Co., which probably handles as much salt, both evaporated and rock, as any concern West of the Mississippi River, is satisfied with the trade outlook. The principal business is done in Michigan salt. J. F. H.

Cement.

The Portland Cement Industry in Michigan.

By Charles D. Walcott,
Director, United States Geological Survey.

Beginning of the Industry.

The history of the Portland cement industry in Michigan begins, says Prof. Israel C. Russell, of Ann Arbor, in Part III, of the XXII Annual Report of the United States Geological Survey now in press, with the year 1872, when the Eagle Portland Cement Co. built a cement plant about two miles northeast of Kalamazoo. The factory was continued in operation until about 1882, but no traces of the kilns are now in existence. Some three miles of sidewalk were put down in Kalamazoo with this cement, and after fifteen or twenty years of use are still in excellent condition. The next factory for making Portland cement was erected by the Peerless Portland Cement Co., in 1896 and 1897, at Union City, and was followed by the erection of the factories of the Bronson Portland Cement Co., at Bronson, in 1897, and of the Michigan Portland Cement Co., at Coldwater, in 1898.

Portland Cement

Portland cement is an artificially prepared substance which has the property of hardening in the air or water when mixed with the suitable proportion of water, and of remaining hard when immersed in water. In its manufacture, a mechanical mixture of finely pulverized limestone or marl and clay or ground shale is calcined, or burned, as the common expression is, and the resulting clinker is ground to a fine powder. This is the Portland cement of commerce. In addition to the raw materials, which enter directly into the composition of Portland cement, fuel is necessary for burning them. For this purpose, in upright kilns crushed coke is generally used; and in the rotating kilns a jet of gas, of petroleum, or of finely pulverized coal is forced in by means of an air blast. The type of kiln now almost universally used in America consists of a steel cylinder about 60 ft. long and 6 or 7 ft. in diameter, lined with refractory material.

How Portland Cement is Made.

These furnaces are rotated rapidly in a nearly horizontal position. The cement is manufactured by what are known respectively as the "wet" and the "dry" processes. In the wet process the finely ground limestone and clay are mixed with about 60 per cent. of water, and this "slurry" is caused to flow into the higher end of the rotary kiln in a small stream. In the dry process the "slurry" is only sufficiently moistened to prevent it from being blown away as dust. As the "slurry" travels down the cylinder, it is raised to a white heat; and the resulting clinker runs from the rotary in a continuous stream of white-hot pellets, which, after cooling, are ground to a fine powder. The cement as it comes from the grinding machines, is of such fineness that from 90 per cent. to 98 per cent. of it should pass through a sieve having 100 meshes to the inch. It is then ready for use, but usually improves with age.

The Raw Material.

The raw materials which enter into the composition of Portland cement thus far used in Michigan are limestone, marl, shale, clay, gypsum and fuel. One of the limestones used is the Dundee limestone, extending in a belt from about two to nine miles wide northeast and southwest across Wayne, Monroe and Lenawee Counties in the southeastern corner of the State. The stone is found also at the extreme northern end of the southern peninsular. The best Dundee limestone thus far discovered is extensively quarried at Sibley and Bellevue, near Trenton, in Wayne County, and is used by the Michigan Alkali Co. for making Portland cement at Wyandotte. Another group of limestone rocks, the Traverse group, crosses Wayne and Monroe Counties in a belt about two miles wide, and crosses also the northern end of the southern peninsular from Alpena, on the border of Lake Huron, to Frankfort, on the shore of Lake Michigan. This limestone is utilized at Alpena by the Alpena Portland Cement Co. Another limestone group, the Monroe formation, is extensively quarried in the southeastern part of the State, but its adaptability for the manufacture of Portland cement is doubtful as yet. The limestone of the Michigan series outcrops at Bayport and Sebewaing in Huron County, on the east side of Saginaw Bay, on the Charity Islands, at Bellevue in Eaton County, and near the Portage River, five or six miles north of Jackson.

Where Marl Beds Are Found.

The marl beds of Michigan occur in abundance throughout the southern peninsular, and are known to be present also to the north of the Strait of Mackinac. These marl beds vary in extending from a few acres up to hundreds of acres, and, in many instances, for an average depth of 20 ft. or more.

The Shale Quarries.

The shale used by the Alpena Portland Cement Co. is quarried about seven miles north of Alpena and near the shore of Lake Huron. The Cold Water shales are now quarried at a locality about one and a half miles east of Union City, and are utilized by the Peerless Portland Cement Co. The Antrim shales are exposed on the shore of Thunder Bay and also at several localities in Charlevoix County, though they have not, as yet, been used in making cement. The Saginaw shales are found in several mines near Saginaw and Bay City, and at Flushing. The Lake clays of Michigan, suitable for cement making, are distributed about the border of the southern peninsular, for example, between Detroit and Ypsilanti, about Port Huron, South Haven, Whitehall, over the Saginaw Valley, and also in numerous local basins throughout the State; but it should be noted that, in general, the surface clays of the southern peninsular are not well adapted for making Portland cement, although some of the stony clays, if crushed sufficiently fine, may be used for that purpose. It is commonly found desirable to add a small per cent. of gypsum to Portland cement clinker before grinding. Michigan possesses extensive deposits of gypsum, particularly at Grand Rapids; and it is from that place that most of the Portland cement factories in this State derive their supply of gypsum.

Coal Dust as Fuel.

The fuel used for heating the rotary kilns is usually bituminous coal, which has been thoroughly dried and ground to a fine dust. This dust is driven into the lower end of the kiln by means of an air blast, and on ignition produces a jet of flame some 15 ft. long. Both crude petroleum and pulverized peat have been used, but coal dust is regarded as the best fuel.

Progress of the Industry.

The Portland cement industry has had a favorable development in Michigan in the last few years. The Bronson and Peerless Portland cement companies began operations in 1897, and by May, 1901, ten factories were producing cement, and six others were in process of construction. The capacity of the ten plants now built is about 2,400,000 barrels of cement per annum. The capital stock of all the Michigan Portland cement companies now organized is about $25,000,000.00, and their estimated capacity is, approximately, 8,600,000 barrels of cement a year. The total consumption of Portland cement in the United States during the year 1900 was between 10,000,000 and 11,000,000 barrels, and the amount manufactured was nearly 8,500,000 barrels. It would seem, then, that Michigan is preparing to supply a demand which does not appear to exist as yet, and as there is a similar activity in this same direction in several other States, it would appear to be evident that the Portland cement industry is in a speculative stage.

CEMENT NEWS NOTES.

The Empire Portland Cement Co. is preparing to rebuild its plant at Warners, N. Y.

Iten & Lawson have purchased the cement stone works of Fisher & Peterson at LeSueur, Minn.

The Guarantee Cement and Stone Co., of Minneapolis, Minn., has been incorporated with a capital stock of $25,000.00.

The Standard Cement Co., of Charlestown, Ind., has given notice of increase of its capital stock from $20,000.00 to $40,000.00.

Tell 'em you saw it in ROCK PRODUCTS.

The Reading (Pa.) Cement Co. has had its works at Molltown closed for a couple of months for repairs, but started up in April.

M. H. Ireland, of Sioux Rapids, Iowa, is manufacturing cement paving blocks. He has equipped his place to make two sizes, 18-in. square and 24-in. square.

The Concrete Tomb Co. has been incorporated at Wilmington, Del., with capital stock of $50,000.00, to manufacture and deal in all kinds of cement.

It is said that the business of the Colton Cement Co., San Diego, Cal., has doubled in the last six months and are now making preparations to enlarge their plant.

The large cement plant of the Lawrence Cement Co., Eddyville, N. Y., that has been idle for the past year, will be put in readiness to manufacture at an early date.

Thomas Millen & Son, Maryland, N. Y., began operations at their cement works April 1. The works had been closed for about three months and extensive repairing done.

Reports from Janesville, Wis., say that a deal has been practically closed by which the American Cement Co. will locate there. This company is to put up a plant to cost $30,000.00 to manufacture cement posts.

The Iroquois Portland Cement Co. plant at Caledonia, N. Y., has been completed, and the making of cement commenced. This company was incorporated with a capital stock of $250,000.00, under the laws of the State of Delaware.

It is reported that the Granite Portland Cement Co., of Cleveland, N. Y., has purchased 1,600 acres of land a few miles from Clyde to build a brick and iron fire-proof cement works, having a capacity of 1,000 barrels a day. They will employ about 200 men.

Hecla Cement Co., Marquette, Mich., is doing some extensive work on its site at the mouth of the Saginaw River in the way of excavating a slip to allow boats to come up to its dock for loading. It is their present intention to have the plant in operation by July.

It is reported that the Empire Portland Cement Co. has purchased the Stevens' patent stone process for the State of New York, with the exception of the territory in and around New York City, and are now operating a plant at Syracuse, N. Y., manufacturing this product.

At its annual meeting, which was held early in April, the Omega Cement Co., Hillsdale, Mich., elected the following officers and directors: Directors—Dr. W. H. Sawyer, C. E. Lawrence, F. M. Stewart, of Hillsdale; Wm. N. Eaton, Jackson; Dr. L. P. Hall, Ann Arbor; F. A. Rothlisberger, Allen; Israel Wicks, Jonesville; C. B. Stowe, Cleveland; Dr. W. H. Lane, Angola, Ind. Officers—F. M. Stewart, president; Israel Wick, vice president; C. A. Wade, secretary-treasurer.

The Southern Portland Cement Co., which is one of the new industries of the South, capital stock $2,750.00, with main offices at Atlanta and plant at Rockmart, Ga., seems to have a promising future ahead. The company was promoted by A. B. Pelletreau, of Kalamazoo, and is organized under the State laws of Georgia with officers as follows: W. F. Cowham, of Jackson, Mich., president; Frank Hawkins, of Atlanta, vice president; Hugh F. Vandeventer, of Knoxville, Tenn., secretary; and Jno. W. Broadman, of Jackson, Mich., treasurer.

The Great Northern Portland Cement Co., of Detroit, Mich., held its annual meeting early in April and elected the following officers for the ensuing year: President, George Anderson; first vice president, Charles A. Strelinger; second vice president, B. W. Yates; treasurer, David Ogilvie; secretary, Fred. E. Farnsworth; auditor, Arthur E. Barley; general counsel, Lemuel H. Foster; Executive Committee, C. A. Strelinger, D. Ogilvie, L. H. Foster. Reports state that the affairs of the company are in excellent condition. Prof. R. C. Carpenter, of Cornell University, consulting engineer, was present, and reported having just returned from the plant at Marlborough, which is ready to receive the machinery. The plant will probably be in operation by July 1.

The Atlas Portland Cement Co. is building a new mill at Hannibal, Mo., that will have a capacity of 4,000 barrels a day. This will make the Atlas company double its capacity to something like 20,000 barrels a day. It is said they will duplicate this plant at Hannibal as soon as it is completed.

Editorial Rambles.

AMONG STRANGERS AND FRIENDS.

It has been so long since we visited among entire strangers that we were inclined to get bashful after a first call on the rock product trade, but we found that ROCK PRODUCTS has made an impression wherever it has been sent, and we were received with open arms, which naturally encouraged us to keep on calling on the trade, because we believe it is necessary to have the counsel and the expression from the craft as to their wants in ROCK PRODUCTS in order to make it readable, serviceable and profitable to all concerned.

AN ECHO FROM BEDFORD.

G. K. Lowell, the general superintendent of the Monon Route, speaking about the quarry districts on his road, said: "The quarries in our district are shipping from 60 to 75 cars a day now, and after the season opens good I am sure they will be shipping 100 cars a day.

"Oolitic stone is being used as far west as Des Moines, as far South as Jacksonville, as far East as Philadelphia. We have equipped our road with cars to carry 100,000 pounds of stone and the result is that our big cars will take the Oolitic stone in competition with the Vermont marble on any railroads where they can handle these cars. Chicago is a large user, and the trade is increasing from year to year."

Speaking of the character of the stone, Mr. Lowell said that one beautiful feature is that it is full of sap, but when it strikes the air it gradually becomes a granite and can be used in competition with granite, and, as a side shot, he said: "I look forward to a large lime business in this section. You will notice that the P-M-B quarries have put in two kilns and others will follow. The Mitchell (Ind.) Lime Co. have a new quarry, and are shipping lime to the Indiana and Michigan trade.

"Johnson Bros. have opened up a new quarry near Bloomington, Ind., shipping 10 cars a day.

"Matthews Bros. have a quarry at South Bend and are very busy, as well as Freese Bros., who started a new quarry at Bloomington."

A KANSAS CITY FISHERMAN.

While at Kansas City we had a nice visit with Mr. C. A. Brockett, of the C. A. Brockett Cement Co., manufacturers of natural cement, plaster and handlers of other rock products. While waiting for the gentlemen to appear we noticed on the wall a picture of Mr. Brockett and his good wife, who, while visiting at Miami, Fla., and to kill time hired a tug and went fishing, accompanied by Mr. and Mrs. Howe. The result was a string of 133 King Fish, averaging in length 2 to 3 ft.

BELIEVES IN ORGANIZATION.

Mr. Brockett don't pretend to be a fisherman, but just a plain operator in rock products, and his thirty years in the business have entitled him to be one of the heads of the craft. Speaking of ROCK PRODUCTS, Mr. Brockett said: "I notice that most all publications on cement pay more attention to writing up Portland cement than any other. Portland has its merits for certain classes of work, but evidently the merits of the natural cement which would answer the purpose equally as well at half cost is overlooked.

"I notice your very interesting article in reference to the Louisville cement industry in the last issue of ROCK PRODUCTS and that the quantity is increasing. This, of course, is good in its way, redounds largely to the benefit of Louisville manufacturers, but you must not overlook the fact that other natural cement manufacturers at the present time, like the Louisville people, have a large trade in various sections of the country.

"There is need, however, for the natural cement men to co-operate in showing the merits of their goods. At the present time they seem to have one thought, and that is to show the merits of their particular brand.

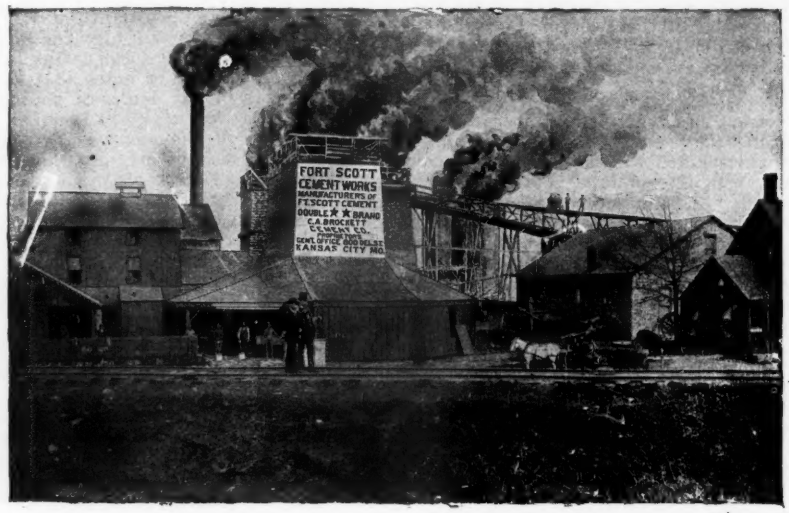
"If all would co-operate, it is my belief that the trade would be double what it is now. Last year was no exception to the rule, and we sold more of our cement than we did the previous year, but we do not lose sight of the fact that unless some united effort is made among the natural cement manufacturers to prevent the engineers and architects from overlooking the natural cement for many purposes equal to other brands, it will be but a few more years before Portland cement will have a large part of the trade. The disposition among builders at present is to either use lime in building or else Portland cement. They lose sight of the fact that the natural cements can be used in place of lime nearly as cheap as lime."

FORT SCOTT CEMENT HISTORY.

In speaking of the history of the Fort Scott hydraulic cement, Mr. Brockett said: "The discovery of hydraulic cement rock at Fort Scott was made in 1868. Samples of this rock were sent to Prof. Agassiz, of Harvard University, for testing. He reported that if the rock was properly calcined and ground it would make a very superior quality of hydraulic cement.

"The deposit is of the most uniform quality; it being only 6 ft. in thickness, there is no variation in its chemistry. At nearly all other places where cement is manufactured, the rock deposit is of greater thickness and in layers, no two of which are alike in their composition. In many cases no single layer will make a merchantable quality of cement. The combining of these two different layers, to produce a merchantable quality of cement, requires great care. The neglect or carelessness in the matter accounts for the variation in quality.

"Nature, in depositing Fort Scott cement rock, effected a most perfect combination for the manufacture of a hydraulic cement.



PLANT OF THE C. A. BROCKETT CEMENT CO.

"It differs from the Portland cements, as they are an artificial combination—no one of the materials in itself would make a cement. The quality in Portland depends entirely on the combining of the different materials. Some of the Portland cements are over-limed; some are over-clayed; some contain too much silica, and there are faults of this kind to be looked after all the time, as the ultimate strength and durability of the cement is now what is expected. While they show greater strength on short-time tests, in the matter of years, they sometimes disintegrate or go to pieces. The Fort Scott hydraulic cement does not show great strength on short-time tests, and as you do not build for a day or week, but for time, it continues to harden for an indefinite time. Work done with this cement nearly thirty years ago is in good condition to-day, and has been continuously exposed to the elements."

The first mill was built and commenced operation in the latter part of the year 1868, with an output of ten barrels a day. This was increased from time to time, as the local trade increased, no effort being made at the time to get into the larger markets. In the year 1888, another mill of larger capacity was built, new markets were sought, and an industry was established, so at this time, the opening of the year 1902, the combined capacity of the two mills is 1,500 barrels daily.

Both mills are equipped with the most improved machinery and appliances to produce uniform, high-grade cement at the lowest minimum of cost. The operation of the mills is in the hands of competent men. The marketing of the products of both mills is under one management. This, in itself, shows business-like methods to the trade. Their shipping facilities are excellent, for they have connection with the Frisco, Missouri Pacific, M. K. & T. and the Kansas City Southern.

MEETING OLD FRIENDS.

We inquired for W. B. Hill, manager of the Ash Grove White Lime Association, at Kansas City, and a friend of his said: "Oh, you will find him up in the Postal Telegraph Building smoking a cigar as peacefully as ever." That was a fact. The first thing that caught our attention was a picture over Mr. Hill's desk entitled "Contentment." Then we looked down on Mr. Hill's rotund figure as he sat back in his leather-back chair, and it seemed to us that he had absorbed the picture "Contentment." The small things of life do not worry him, as he deals largely with up-to-date methods of getting out and marketing rock products.

In speaking of trade conditions, he said: "We are busy—always are. We sell all we can make. You know we are high-priced folks. We deal in quality. We make it at our kilns and the Ash Grove lime will sell from 5 to 10 cents a barrel more than others on account of the quality of our lime, it being cheaper for the buyer, even though he pays more for a barrel of it."

CEMENT SHOULD BE GROUND FINE.

In speaking of the cement business, he said: "You know I am a natural cement man, am interested in the business, but I find that most of our competitors don't grind it close enough. Natural cement should be ground to run 90 per cent. on a 10,000-mesh sieve. Many of our friends overlook this in making the cheaper quality and hence they get nearer to the sand product than to a good setting cement. There is nothing like up-to-date methods in getting out your product and selling it. It is essential to have our brand of cement finely ground. Being harder to grind, it ought to be carefully worked because it will last longer when properly handled. There is only one way to meet competition, and that is to raise your grade to meet it.

WHERE ASH GROVE LIME IS MADE.

Mr. Hill is the president of the Ash Grove Lime Association, which operates plants at Ash Grove, Everton, Galloway and Carthage, Mo.

The Ash Grove White Lime Association was established in 1881. The other officers are P. J. Dorrenheim, vice president, and J. H. Barton, secretary and superintendent. The majority of their lime is made at Ash Grove and the capacity is 2,200 barrels a day of white lime, ten kilns being operated at Ash Grove alone. They have always catered to quality rather than price. High-grade lime, or any other product, will sell itself. You can guarantee to the trade that it is no dearer to the consumer, and while it costs more per barrel, it is cheaper per barrel when using Ash Grove white slow-setting lime.

Speaking of his early history in the lime business, a friend of Hill said: "Hill was a coal dealer over in Missouri, and his brother-in-law, Barton, believed in the lime business and went into it. Finally the business got to such proportions that it was necessary to have two live, wide-awake men

Tell 'em you saw it in ROCK PRODUCTS.

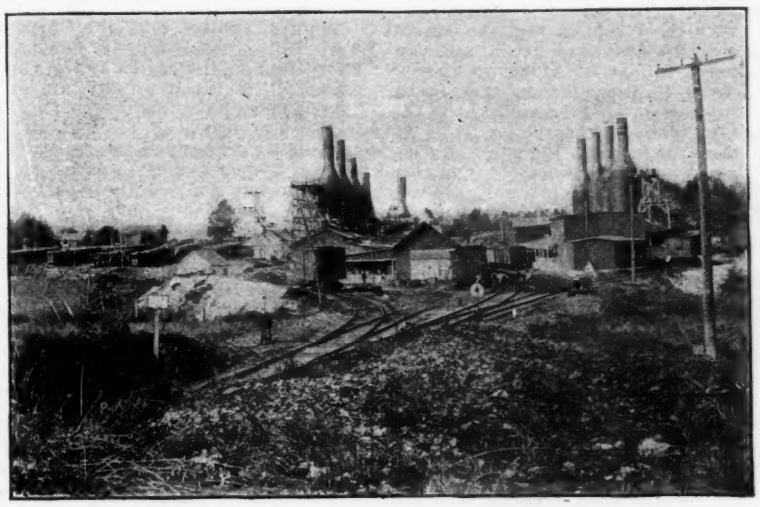
looking after it, so W. B. Hill became the president of the company, and has been active in the business ever since. Every up-to-date method which will push the product of rock in the building trade has Mr. Hill's co-operation. The fact is that there is not a better known man connected with the business than W. B. Hill. He is also interested in the cooperage stock business and is a part of the Black Rock Cooperage and Lumber Co., and a member of the Board of Directors of the Banner Cement Co., with headquarters in Chicago and mills in Indiana. He is one of the directors of the United States Gypsum Co., which owns the majority of the big plaster mills in the West, and a number of other institutions of these allied industries. Brother Hill is young in feeling, as well as years, and is as good an example of the product of the farm as you ever saw.

SHOWN IN MISSOURI.

E. R. Stapleton, the assistant sales manager at St. Louis, Mo., of the Iola Portland Cement Co., told us the other day that they were producing 3,500 barrels a day of their Iola celebrated Portland cement made by natural gas. In speaking of conditions, Mr. Stapleton said they started the company a year ago last November in Iola, Kan., and were very successful in placing their product. Something like 700,000 barrels were made last year, and the Iola Portland cement has become more popular each day, because of the quality of the cement they are furnishing the trade.

A. S. Matchain, the superintendent of the Lehigh Portland Cement Co. plant, visited St. Louis during the past month. We were unfortunate in missing him.

We met another old friend who operates the Missouri Silica Co. at Pacific, Mo., where they have



A PLANT OF THE ASH GROVE LIME ASSOCIATION.

something like 200 acres of land and a sand bank 75 ft. deep. They have a superior quality of silica sand, and are selling same to the glass works. They will put in a plant to dry sand and will get out from five to ten cars a day. They have a crusher and are working in the Petersburg vein at this time.

The Illinois Glass Co. have a plant at Klondike, Mo., on the M. K. & T., and Mr. Cummings, the superintendent, is getting out something like fifteen cars a day.

For fifteen years we have known D. W. Pratt, of St. Louis. Our friend Pratt is well known in the Southwestern district and from the number of orders he has been receiving lately, he evidently is in very close touch with the stone and mining trade. Mr. Pratt made us welcome and then told us about what he had been selling lately. A cableway and Flory engine to the Green River Asphalt Co., Bowling Green, Ky., for unloading boats at the mill. Then the West Fordyce Construction Co., of St. Louis, who are building the Valley railroad from E. St. Louis to Cairo, placed with him the largest contract for crushers and other machinery placed recently. He sold them two 7½ Gates rock crushers, 300 h. p. boiler, 225 h. p. engine, Sullivan air compressor, rock drills, heaters, air receivers, pumps, and has just returned after starting the erection of a plant, which was a crushing plant, with a capacity of 100 car loads of macadam in ten hours. The Valley road will need 145 miles of ballast. This new plant will furnish the same. Speaking of trade conditions, Mr. Pratt said they had been very busy this spring and the prospects are very good for the year.

A Digest of the Industries from the Twelfth Census Report--Continued from Last Month.

ILLINOIS.

BRICK AND TILE.—Five hundred and sixty-six establishments; capital, $9,198,944.00; wage-earners, 5,224; wages paid, $2,130,854.00; cost of material used, $1,025,681.00; total value of product, $5,081,394.00.

FERTILIZERS.—Five establishments; capital, $1,623.505.00; wage-earners, 337; wages paid, $172,250.00; cost of material used, $1,005,731.00; total value of product, $1,855,160.00.

KAOLIN AND OTHER EARTH GRINDING.—Three establishments; capital, $2,504,872.00; wage-earners, 29; wages paid, $15,504.00; cost of material used, $52,323.00; total value of product, $99,428.00.

LIME AND CEMENT.—Thirty-two establishments; capital, $2,280,332.00; wage-earners, 690; wages paid, $320,577.00; cost of material used, $427,253.00; total value of product, $1,311,503.00.

MARBLE AND STONE WORK.—One hundred and thirty-five establishments; capital, $3,745,400.00; wage-earners, 2,504; wages paid, $1,254,122.00; cost of material used, $1,058,410.00; total value of product, $3,458,284.00.

MASONRY, BRICK AND STONE.—Five hundred and eighty-four establishments; capital, $3,119,868.00; wage-earners, 8,057; wages paid, $4,675,681.00; cost of material used, $8,992,938.00; total value of product, $19,486,133.00.

MONUMENTS AND TOMBSTONES.—Two hundred and twelve establishments; capital, $1,167,903.00; wage-earners, 619; wages paid, $335,334.00; cost of material used. $1,122,781.00; total value of product, $2,062,393.00.

PAVING AND PAVING MATERIALS.—One hundred and eighty-one establishments; capital, $1,777,783.00; wage-earners, 3,362; wages paid, $1,344,425.00; cost of material used, $2,676,165.00; total value of product, $5,277,630.00.

PLASTERING AND STUCCO WORK.—Two hundred and thirty-four establishments; capital, $464,515.00; wage-earners, 1,240; wages paid, $721,038.00; cost of material used, $636,735.00 total value of product, $1,942,498.00.

POTTERY, TERRA COTTA AND FIRE-CLAY PRODUCTS.—Fifty-three establishments; capital, $3,511,765.00; wage-earners, 2,005; wages paid, $841,053.00; cost of material used, $576,061.00; total value of product, $2,143,521.00.

ROOFING AND ROOFING MATERIALS.—One hundred and sixty-six establishments; capital, $1,235,562.00; wage-earners, 1,030; wages paid, $550,277.00; cost of material used, $1,325,361.00; total value of product, $2,586,664.00.

INDIANA.

BRICK AND TILE.—Five hundred and fifty-eight establishments; capital, $4.505.080.00; wage-earners, 3,609; wages paid, $1,195.540.00; cost of material used. $552,447.00; total value of product, $2.931,211.00.

FERTILIZERS.—Fourteen establishments; capital, $215.875.00; wage-earners, 45; wages paid, $18,640.00; cost of material used, $159,089.00; total value of product, $255,331.00.

LIME AND CEMENT.—Thirty-five establishments; capital, $652,913.00; wage-earners, 523; wages paid, $182.051.00; cost of material used, $242,956.00; total value of product, $542,979.00.

MARBLE AND STONE WORK.—Seventy-two establishments; capital, $1,241,001.00; wage-earners, 1,149; wages paid, $514,231.00; cost of material used, $408,900.00; total value of product, $1,442,225.00.

MONUMENTS AND TOMBSTONES.—One hundred and eighty-two establishments; capital, $532,646.00; wage-earners, 396; wages paid, $202,193.00; cost of material used, $644,550.00; total value of product, $1,218,418.00.

PAVING AND PAVING MATERIALS.—One hundred and eight establishments; capital, $920,827.00; wage-earners, 1,904; wages paid, $663,767.00; cost of material used, $966,100.00; total value of product, $2,292,678.00.

PLASTERING AND STUCCO WORK.—One hundred and forty-nine establishments; capital, $88,832.00; wage-earners, 406; wages paid, $206,568.00; cost of material used, $246,335.00; total value of product, $619,736.00.

ROOFING AND ROOFING MATERIALS.—Seventy establishments; capital, $226,920.00; wage-earners, 232; wages paid, $97,683.00; cost of material used, $322,231.00; total value of product, $575,200.00.

IOWA.

BRICK AND TILE.—Three hundred and thirty-nine establishments; capital, $3,076,355.00; wage-earners, 1,986; wages paid, $768,860.00; cost of material used, $460,313.00; total value of product, $1,976,323.00.

LIME AND CEMENT.—Twenty-eight establishments; capital, $663,830.00; wage-earners, 302; wages paid, $145,382.00; cost of material used, $181,514.00; total value of product, $543,267.00.

MARBLE AND STONE WORK.—Thirty-nine establishments; capital, $370,479.00; wage-earners, 352; wages paid, $161,363.00; cost of material used, $102,503.00; total value of product, $355,046.00.

MONUMENTS AND TOMBSTONES.—One hundred and thirty-nine establishments; capital, $637,587.00; wage-earners, 328; wages paid, $177,585.00; cost of material used, $630,514.00; total value of product, $1,267,459.00.

PAVING AND PAVING MATERIALS.—Thirty-eight establishments; capital, $146,082.00; wage-earners, 330; wages paid, $114,410.00; cost of material used, $157,740.00; total value of product, $358,485.00.

PLASTERING AND STUCCO WORK.—Fifty-eight establishments; capital, $24,084.00; wage-earners, 151; wages paid, $64,570.00; cost of material used, $77,717.00; total value of product, $200,414.00.

POTTERY, TERRA COTTA AND FIRE-CLAY PRODUCTS.—Seventeen establishments; capital, $361,258.00; wage-earners, 234; wages paid, $93,299.00; cost of mat rial used, $57,267.00; total value of product, $248,597.00.

ROOFING AND ROOFING MATERIALS.—Twenty-nine establishments; capital, $92,071.00; wage-earners, 97; wages paid, $31,834.00; cost of material used, $84,088.00; total value of product, $165,474.00.

KANSAS.

BRICK AND TILE.—Fifty-seven establishments; capital, $754,710.00; wage-earners, 905; wages paid, $314.330.00; cost of material used, $156,294.00; total value of product, $724,351.00.

FERTILIZERS.—Three establishments; capital, $229,733.00; wage-earners, 155; wages paid, $70,882.00; cost of material used, $411,139.00; total value of product, 549,943.00.

LIME AND CEMENT.—Thirteen establishments; capital, $617,191.00; wage-earners, 167; wages paid, $60,727.00; cost of material used, $88,056.00; total value of product, $314,451.00.

MARBLE AND STONE WORK.—Forty establishments; capital, $158,880.00; wage-earners, 264; warges paid, $141,976.00; cost of material used, $66.343.00; total value of product. $314,681.00.

MASONRY, BRICK AND STONE.—Ninety-seven establishments; capital, $150,148.00; wage-earners, 602; wages paid, $315,841.00; cost of material used, $604,877.00; total value of product, $1,137,337.00.

MONUMENTS AND TOMBSTONES.—Seventy-three establishments; capital, $164,185.00; wage-earners, 144; wages paid, $64,271.00; cost of material used, $226,098.00; total value of product, $412,792.00.

PAVING AND PAVING MATERIALS.—Forty-four establishments; capital, $184,779.00; wage-earners, 564; wages paid, $239,947.00; cost of material used, $588,965.00; total value of product, $969,621.00.

PLASTERING AND STUCCO WORK.—Sixty establishments; capital, $20,596.00; wage-earners, 116; wages paid, $66,506.00; cost of material used, $91,028.00; total value of product. $221,157.00.

POTTERY, TERRA COTTA AND FIRE-CLAY PRODUCTS.—Three establishments; capital, $19,700.00; wage-earners, 22; wages paid, $11,520.00; cost of material used, $5,824.00; total value of product, $29,060.00.

ROOFING AND ROOFING MATERIALS.—Twelve establishments; capital, $19,685.00; wage-earners, 25; wages paid, $10.386.00; cost of material used, $13,223.00; total value of product, $32,261.00.

Tell 'em you saw it in ROCK PRODUCTS.

Slate.

In the Slate and Cement Regions of Pennsylvania.

It will not be disputed by one conversant with the facts that the counties of Lehigh and Northampton, in Eastern Pennsylvania, are spots highly favored by nature in the matter of rocky products. Though widely known, Lehigh Valley, so called after the river that flows through it, is to a very great extent embraced within their borders. In the basins of their mountains and hills, as beneath the soil of her fertile fields and valleys, are found, in practically inexhaustible quantities, slate and cement rock that rival those of any other known region in the United States, if not in the world.

The Slate Business the Oldest.

The slate business takes precedence of that of cement in point of age and development. Before the manufacture of cement was ever thought of by way of the extensive commercial uses to which the product has been applied in these days, the quarrying of slate rocks and the making of roofing slate in the region under consideration began, and at the time when the cement industry began its marvelous growth in this district, had risen from an "infant" industry to be a fully-developed and permanently established one.

The slate business of the Lehigh region embraces more than 100 quarries with millions of invested capital, employing skilled labor, the very latest machinery and appliances, and sends its products not only to every State in the Union, but shiploads thereof to Europe, entering even into successful competition with the renowned quarries of Wales.

Location and Extent of Slate Quarries.

The Lehigh slate region proper lies immediately South of the Blue mountains for a distance of about 20 miles between its extreme points, and borders on the same, embracing the foothills of this mountain range. Its greatest breadth is scarcely more than 10 miles at any point, and much narrower at others.

Operations center around the towns of Slatington, in Lehigh county, and Bangor, Pen Argyl, Danielsville and Wind Gap, in Northampton county, with Bangor as the main point. The Slatington region exceeds the Bangor region in the number of quarries grouped about it. There are no less than 50 within a radius of a few miles. Within the Slate Belt is manufactured every article that it is possible to fashion out of slate—roofing slate, school slates, black boards, mantels and ornamental objects of every conceivable kind are turned out in large quantities. Roofing slate and school slates, however, are the leading products.

Damaged by Floods.

The heavy rains of the winter resulted in unprecedented floods from which the quarries of the Lehigh district probably suffered the most, both quarrying and shipping being seriously interfered with. There were four such occurrences, resulting in extensive cave-ins, and flooding of the pits, incurring considerable loss to the operators and necessitating extensive and costly cleaning up before operations could be resumed. There was not a quarry in the whole Belt that did not suffer damage. The Lehigh Valley Railroad and the Central Railroad of New Jersey were twice crippled by extensive washouts and the destruction of bridges, resulting in the suspension of most of the traffic both East and West. The slate business suffered correspondingly, but the roads are past being repaired.

The outlook for business is bright. There is not a slate producer in the whole Slatington region who does not confidently declare that the slate business stands at the threshold of the brightest era ever known. They say that more slate will be sold than in any year gone by, and at better prices. The long-cherished dream of an advance in price will be realized this season, and it will probably amount to an increase of 10 per cent. over the long-prevalent prices.

Seldom Have Labor Troubles.

The whole slate region has hitherto been singularly free from labor troubles. There has been little unrest among the workmen. Employer and employes have hitherto lived in harmony. Skilled labor has enjoyed good wages and common labor has received compensation to the full measure of the standard that prevails in this part of Pennsylvania for that class. Whatever strikes have occurred were altogether local and at no time involved the whole slate territory. This is particularly true of the Slatington region.

The Present Labor Troubles.

In the Bangor district trouble has come, however, and there is a strike on. The operators and their men have locked horns in what may prove a prolonged and furious battle, with prospects of a lockout for the men. The cause of the strike is the demand for a nine-hour day instead of ten as at present, together with an increase of wages. This, the operators declare they will not accede to, and assert they will shut down all the quarries and plants for any length of time rather than yield. As the men, organized during the last year, are affiliated with the American Federation of Labor, a long struggle may reasonably be anticipated. No fear is entertained, however, that the strike will become general in the Slate Belt, and the only result will probably be a still greater increase in the market price of slate, and a lack of ability to fill orders as expeditiously as desirable.

With the Cement Workers.

Paralleling the Slate Belt, and virtually skirting its very border, lies the great cement region of Pennsylvania. Comparing the two, they are about the same in extent at present known and developed, with the exception that the cement belt extends across the Delaware River into New Jersey, to the small village of Alpha, and about five miles out from Phillipsburg, in that State. By far the greater portion of the region lies in the counties of Lehigh and Northampton. It is in this territory that the cement industry has developed by such marvelous leaps and bounds that it has outstripped the slate business and promises to leave it far behind.

American Portland Cement.

It is in the town of Coplay, located in this region, that American Portland cement, that now rivals the European product, had its birth. The man who mastered the problem of its manufacture was David Saylor, now deceased, and the first plant for its manufacture was built by a company in 1865, now 37 years ago. It took a considerable number of years until engineers and contractors admitted the American article into their favor, and until their partiality and prejudice in behalf of the foreign product had been successfully overcome. With that accomplished, however, the use of the giant industry began. In a period of less than 25 years what was a quiet country district, knowing only the quiet life of the farm with a few villages scattered here and there over it, has been transformed into an active, hustling, bustling section, teeming with life and thrilling with business. The farms over which the husbandmen followed the plow in unbroken monotony, and for whose acres he could hardly find a purchaser at $80.00 an acre, suddenly rose to $300.00, and like a wise man he sold it and went into retirement.

A Long Array of Mills.

Thus for the cement region has developed two distinct divisions which may appropriately be denominated the Eastern and Western sections, the former having the historical Moravian town of Nazareth for its center, and the latter, Coplay. Thirteen different corporations, some of them operating two, three and four large mills, are located here, with three more in New Jersey in a section that may properly be included in this belt; namely, the Vulcanite and Alpha mills at Alpha, N. J., and the Edison mill in the proximity of Carpenterville, not far away from Alpha. The mills in the Eastern section are the Lawrenceville, near Bath; the Dexter, the Phœnix and the Nazareth Portland Cement Co., at Nazareth; the Northampton Co., near Stockertown, and the Martin's Creek Mill, near a village of the same name on the banks of the Delaware in Pennsylvania. In the Western district are the Coplay Portland Cement Co.; the Lehigh Portland Cement Co., and the American Portland Cement Co., at Egypt; the Whitehall Portland at Cementon; the Lawrence Portland and the Bonneville Portland, at Siegfried, now incorporated as the Borough of Alliance, and the Atlas Portland, at Northampton. All but three of these companies have been organized in the last six years. Their combined invested capital runs into many millions and their output is enormous.

There are several tangible reasons why the growth of cement manufacture has been so rapid. It is not alone the increased demand for cement, but much more the quality of the stone, not forgetting the fact that the cement district is but 30 miles from the anthracite coal regions of Pennsylvania, with two of the leading coal roads tapping that district, passing through this section; and remembering also that strikes are not known here save in a restricted capacity, and labor is cheaper than in many other sections of the States. But the chief attraction would seem to be the quality of the rock and the abundance of it. The cement rock of this region combines within itself a large percentage of the essential ingredients entering into the manufacture of the best cement.

Figures Tell the Story.

The growth of the cement business is perhaps best illustrated by the remarks of one who has been one of the shipping agents in the Western section, and who is thoroughly acquainted with the amount of goods manufactured, who said: "When I took charge of my position twenty years ago the annual shipments of cement from this point were 100,000 barrels; in 1900 they were, in round numbers, 2,500,000, and in 1901, 3,500,000 barrels, a leap by way of increased product of 1,000,000 barrels per annum." An official connected with one of the largest mills, asserted that that particular mill was sending out on an average 140 carloads a day the year round.

Stock Houses Are Empty.

Inquiry reveals that the stock houses which were full a year ago are empty or nearly so. Every mill in the region is working to its fullest capacity, keeping it up day and night, with Sunday included.

The American and the Lehigh Portland mills are adding more facilities by erecting new mills to meet their demands. Another mill, by improved methods, has doubled its capacity.

All of the plants have their own methods of manufacture and are equipped with the very best and latest machinery genius can contrive. Wherever automatic machinery can be used it is secured and placed.

American Greatness

So well equipped are some of these mills that it is stated as an actual fact that if necessity requires, two hours after the crude rock leaves the quarry, the finished product could be loaded on the cars, still red hot, for shipment. This is a striking contrast compared with the process employed in the olden time in Europe, when it required several months to do the same thing. And when even now in the same country under more modern process it requires days and in some cases several weeks, to accomplish that much. The deduction is plain. Great is America!

The Elk Rapids (Mich.) Portland Cement Co., is booked to start up May 1. This plant has been idle for nearly a year, but is said to have some large orders on hand to begin with.

It is said that the controlling interest in the Southern Cement Co., Birmingham, Ala., has been purchased by Daniel Parson, A. C. Courter and H. R. Sampson, Newark, N. J.

A cement mill, with a capacity of 200 barrels a day, will be erected at Riverside, W. Va., at a cost of $200,000.00. For particulars regarding the new plant, address the Cumberland Hydraulic Cement and Manufacturing Co., P. O. Box 264, Cumberland, Md.

The St. Louis Portland Cement Co. is building a new plant at Prospect Hill, a suburb of St. Louis, Mo., on the Burlington Railway, which is designed for an ultimate capacity of 3,000 barrels. They are installing machinery at present for turning out about half this amount, and expect to be turning out cement the latter part of the summer. This plant is strictly up-to-date in all respects, and we expect in the near future to have a full description of it, because we think it would interest the trade to know more of the machinery and ideas entering into a strictly up-to-date Portland cement plant. E. E. Paramore is president of the company, and John C. Robinson is secretary-treasurer.

Tell 'em you saw it in ROCK PRODUCTS.

Lime.

The Star Lime Co. make about 300 barrels of lime daily at Quincy, Mo.

The Erscher White Lime Co. has been building a modern plant at Woodville, Ohio, and are booked to start May 1.

The Western Lime and Cement Co., Milwaukee, Wis., is building a new warehouse and office to cost about $15,000.00.

E. A. Gillette, of the Crescent White Lime Co., Johnson, Ark., who is operating a lime kiln in Arkansas, was in St. Louis recently.

The Hannibal Lime Co., Hannibal, Mo., are enjoying a fair trade, owning a large quarry, and with a larger equipment of kilns could do more business.

Finch, Pruyn & Co., Glen Falls, N. Y., lost four lime kilns and a large storage shed by fire during the past month. The loss is estimated at over $5,000.00, with some insurance.

The National New Process Lime Co. has been incorporated at East Orange, N. J., to manufacture lime, etc. The offices will be at 525 E. Main Street, and the incorporators are: M. W. Baldwin, F. R. Serels and A. G. Brown.

G. B. Dodge, of the Toledo White Lime Co., reports business very active with them. They have several kilns running full blast and their new system of making limeoid is being very kindly received wherever it is sold.

Mr. G. A. Mace, of Menomonee Falls, Wis., has invented a new process for burning lime which it is said promises to revolutionize the lime manufacturing industry. A new plant at Rockville will use this invention and lime be made without the use of any fuel in the burning process.

The Seneca White Lime Co., Fostoria, Ohio, have an eye to the proper way of doing business, because they are pushing their fresh-burned ground lime among the farming trade as a fertilizer. They issue circular matter giving interesting information along this line, and the retail dealers in this product should make a study of it, so as to be able to talk lime more to the farmers.

Lime as a Fertilizer.

There is a greater need of increasing the uses of lime to-day than ever before. Some of our friends in the trade have built up a nice business on the agricultural line. Others are considering the advisability of doing so, and there is no reason why all having a certain quality of lime, which would be wasted otherwise, can not market it in this way, for where the percentage of waste is great the profits of an institution soon diminish and melts like a snowball on a hot day. The farmer takes quite an interest in the subject of liming his lands, and the demand for those who have been catering to this trade is increasing. Lack of information as to the many details connected with liming land perhaps is responsible for the slow progress in selling it, but co-operative effort among the lime manufacturers who have a percentage of their lime, which ought to be sold for this purpose exclusively, would promote a good market for the same. Lime will kill smut in onions and the fly in wheat. It will cure sour land. We will be glad to have an expression from the trade on their experience in selling lime to the agricultural trade.

Count the Cost.

In looking over the lime trade we find there are many manufacturers who put in a new lime kiln and forget to count the cost. The life of a kiln is something like three or four years, when a new kiln must be built to keep up with the styles. The tendency of some lime manufacturers is to overlook the depreciation which goes on from year to year. Then there is the cost for repairs—something like 3c a barrel. You can not be too careful in noting each item of cost, because how can you intelligently make a price unless you know exactly what each item costs in making up this figure. Probably this neglect of the cost has been responsible for many a good concern going on from year to year making a loss instead of a profit.

A Bit of Lime History.

The following bit of history of the lime industry is from a paper read by A. F. Crockett at the Board of Trade banquet at Rockland, Me., during April:

"In the year 1732 Samuel Waldo made experiments with limestone found near the river at what is now called Prison Quarry, and caused a kiln to be erected and lime burnt for the Boston market.

"In 1785 we find a number of persons in the town of Thomaston began trying to manufacture lime, but to no great extent for many years.

"George Ulmer, a young man from Waldoboro, a small trader near Lermond's Cove, was engaged in the business of lime burning, so that to him probably belongs the honor of being the first lime burner in what is now Rockland.

"In 1792 Gen. Henry Knox employed a young Frenchman, educated in the Royal Academy in Paris, to explore his whole patent, testing its ledges and boulders, which agree with more modern explorations of the rich beds of limestone previously known.

"Two years later, Capt. John Ulmer, a native of Germany, who came over with his father in the first company of emigrants to Broad Bay, now Waldoboro, removed his family from that town to a large tract of land in the Eastern part of the town, now Rockland, which he had taken up, and on which his sons George and John, Jr., had been working several years earlier.

Captain Ulmer, himself, continued burning lime from these quarries, probably the first opened in that part of the town. On being jerred by some of his Waldoboro friends for settling in such a wilderness, he replied: 'This will one day become a city," a prophecy which some of his thirteen children lived to see fulfilled.

"In the following year, 1795, we find that the manufacture of lime received Gen. Knox's attention, and was prosecuted at the quarry now belonging to the State prison, and the kilns on the bank of the river a little above where the lower toll bridge has since been erected.

"The town of Thomaston was divided in 1848 into three towns, East Thomaston, South Thomaston and Thomaston. In 1850 the name of East Thomaston was changed to Rockland, and the brand of lime was likewise changed.

"In 1853 the lime industry in Thomaston was greatly on the decline, on account of the increase in ship building. James Moore produced in 1860, 14,000 casks, valued at $2,400.00; Alfred Rollins, 2,500 casks at $1,500.00, and Isaac Hodgman, 1,400 casks at $900,000. Soon after, however, by the introduction of improved patent kilns, the business in some measure revived.

"Previous to 1854, lime had also been manufactured in small kilns—now called old-fashioned—in Camden, then comprising the present towns of Camden and Rockport, and a very small quantity was burned in the town of Lincolnville.

"In 1854 Chas. Crockett introduced a patent or perpetual kiln, building one near the quarry then owned by him. Soon after John Jameson built a second one, and John J. Perry the third, after which time they were generally adopted by those in the business in Rockland, Camden and Thomaston, the type not being materially changed until recently.

"Within the past few years, however, some alterations have been made, which are considered improvements, and while experiments have been made with oil, coal and gas, for fuel, it is but a short time since coal came into general use as such, wood having been used, which was less objectionable on account of smoke, but competitors, with improved methods and by use of coal, furnishing their goods to the same markets, were cutting prices to such an extent that manufacturers here were obliged to adopt the use of coal or abandon their markets and close their kilns indefinitely."

Tell 'em you saw it in ROCK PRODUCTS.

Plaster.

The Sandusky Wall Plaster Co., Sandusky, Ohio, is now ready to begin work.

Owing to the location of the Gypsum fields in the West, small towns are largely using plaster in preference to cement.

The Rock Island Plaster Co., which has been recently incorporated, will establish a plant at Ancho, New Mexico. The capital stock of this company is $250,000.00.

The Fishback Plaster Co., Toledo, Ohio, has located a branch factory on the Wabash Railroad at Fort Wayne, Ind. The business of this firm is growing very rapidly.

The Marsh plaster beds at Gypsum, Ohio, have been purchased by the United States Gypsum Co., Chicago, Ill. It has also purchased the Granite Wall Plaster Co., Port Clinton, Ohio, and the Sandusky Wall Plaster Co., Sandusky, Ohio.

The Rice Wall Plaster Co., Dayton, Ohio, has been incorporated with a capital stock of $25,000.00. They will deal in patent wall plaster and cement. Incorporators are: Elwood E. Rice, A. Lincoln Bowerson, Noah W. Leezer, Franklin Rice and Charles W. Dale.

The Crown Wall Plaster Co., Braddock, Pa., is rushed with business, and the prospect is bright for a prosperous season. Their plant is located on the Monongahela River, and they have three railways to ship over also, so that they have no difficulty in handling their stock.

Hard and Soft Plaster.

The retail lumber dealers are interested in the plaster question, as they naturally should be, and we note the following inquiry from D. Dingman, from Overton, Iowa, in the *Mississippi Valley Lumberman:*

"Can anybody tell me if hard wall plaster is better than lime plastering? The hard wall plaster is now in this section, and I would like to try a car of it."

An answer to this question the following was quoted from the *American Architect:*

"In this age of improvement it seems strange that men should have been so long confined to the use of lime, sand and hair for making interior walls and ceilings, especially since walls so made have proved very weak and unsatisfactory, and many know from sad experience what destruction, annoyance and loss ensue when from some slight cause, its own weight or rottenness, down come ceilings about their ears with the inevitable result of damage, dust and confusion."

Hard wall plaster is made from stucco, which is the product of gypsum rock. Its value depends on the quality of rock used and the methods of calcining. That it is durable has been proven in many ways. When the ruins of Pompeii were uncovered many of the walls were found to have been plastered with a stucco plaster, and where the walls themselves were not overthrown the plaster was found intact. The manufacturers of hard wall plaster claim to have proof that an excess of moisture has little or no bad effect on their product, while experience with lime plaster shows, that as a rule, water has a disastrous effect. Hard plaster dries very quickly and the wall is ready for the second coat two or three days after the first has been applied.

The varying qualities of lime and sand make it practically impossible to determine the proportions of each to use, while the manufacturers of hard plasters have reduced the mixing to a science, and by the use of uniform material get uniform results. In case the hard plaster is shipped unsanded, directions are given for mixing that will produce the correct result. If the sanded plaster is used it requires only the mixing of water just before it is used. As it dries quickly, the adjacent woodwork is not affected, as it is by the use of lime plasters that saturate everything with which they come in contact. Many other good qualities are claimed for hard plaster, and the fact that it is rapidly replacing the other is proof that is gives satisfaction.

Salt.

The Story of Salt, from the Twelfth Census.

[SECOND PAPER.]

Kansas.

The first salt made in Kansas was obtained from marshes which are scattered over the central part of the State. Along the banks of these marshes salt works were constructed, similar to those used by the ancients. Stone arches were erected about the kettles in which the brine was evaporated, and chimneys were built in order to economize fuel and heat as much as possible. Until 1868 these crude factories were the only ones in Kansas. As late as 1870, salt obtained in this way was worth as much as 10 cents a pound, equivalent to $28.00 per barrel.

In 1867 a company erected a plant and began drying brine at Solomon City, where wells were sunk and good brine struck at about 75 feet. A second solar plant was erected by William Dewar at Solomon City in 1874. No record of any salt manufactured in Kansas was obtained until the tenth census, in 1880, in which year a total production of 2,000 barrels was reported. The development of the industry between 1880 and 1890 was marked by one of the most remarkable changes which took place in that region during the decade. The product of Kansas in 1890, as reported by the eleventh census, was 1,140,799 barrels, while in 1899 it reached a total of 1,645,350 barrels. It was not until the latter part of the decade from 1880 to 1890, however, that salt manufacture in Kansas assumed importance as an industry. In 1887 the State experienced a period of great activity in the development of coal mining and other industries. In the search for petroleum or gas a large body of rock salt was struck near Hutchinson. The people who owned the wells in which the salt was found were much disappointed at finding neither coal oil nor gas in large quantities, and did not at once appreciate the real value of the discovery, but an important industry was soon built up, and some of this salt, particularly the dairy and table brands, nows finds its way into the markets of the Eastern States.

A small amount of salt was made by solar evaporation in Kansas in 1899, but the greater portion of the product was evaporated in the 13 grainers and 36 open pans. The use of kettles has been abandoned, and no vacuum pans have been introduced into the State. The amount of rock salt produced in Kansas was not reported separately at the eleventh census. The quantity produced in 1899 amounted to 468,029 barrels.

A body of rock salt was discovered at Lyons, in Rice county, in 1887, by prospectors in search of oil or natural gas. The drill penetrated the body of salt at a depth of 830 ft., and passed through it only on reaching a depth of 1,100 ft. In 1890 a company was organized by business men at Lyons, Kans., and St. Louis, Mo., and a shaft was sunk at a point about three-fourths of a mile from the city of Lyons. The shaft penetrated the bed of salt to a depth of 265 ft., making the total depth of the shaft from the surface, 1,065 ft., there being some 30 or 40 ft. of salt below the bottom of the shaft.

On sinking the shaft through this 265 ft. of salt strata, 15 workable veins of rock salt, ranging from 4 to 18 ft. in thickness, and separated by veins or layers of shale, from one-fourth of an inch to 5 ft. in thickness, were penetrated. A vein of salt 18 ft. in thickness and of exceptional purity was selected for mining purposes, the lower 10 or 12 ft. of this vein being mined. From the bottom of the shaft the mine is laid off somewhat similarly to the streets of a city, the main streets, 25 ft. in width, running East and West, and the cross streets, of the same width, running North and South. From these cross streets rooms or chambers are driven, having a width of 50 ft., there being pillars 50 ft. in thickness left standing between the chambers. It is in these chambers that the principal mining operations are carried on.

The rock salt is at first undercut with mining or channeling machines operated by compressed air; holes are made in the salt with air drills; and dynamite, exploded by electricity, brings the salt down to the floor of the mine. The loose salt is loaded on cars, each holding about two tons, conveyed to the shaft by underground railroads and hoisted to the top of a five-story mill building directly over the mouth of the shaft. It is dumped automatically from the mine cars into crushers over dumps and passes by gravity down through different sized crushers to the screen room below, where, by screens of various sizes, it is separated into nine different grades. Thence it is conveyed to large bins, from which it is loaded into railway cars.

Louisiana

The Southern coast of Louisiana is marked by a striking topographical and geographical feature, consisting of five islands or mounds which rise from the otherwise marshy land. These islands range in height from a few feet to about 250 ft. They are arranged in a practically straight line running Northwest and Southeast. They are known as Jefferson or Orange Island, Weeks Island, Avery Island, Cote Blanche, and Belle Isle. All of these, except Cote Blanche, have been prospected for salt, which has been struck at a comparatively shallow depth in each case. No knowledge of the depth of the beds, however, has yet been obtained. On Jefferson Island a drill penetrated to a depth of 2,100 ft. without passing through the salt bed.

So far as known the first attempt to manufacture salt in Louisiana was made in 1791, on Avery Island, the discovery being made by a man named John Hays, who came across a brine spring while hunting. The attempt to manufacture salt from this spring was, however, not a success, as the supply of brine was not sufficient to pay the expenses of operation. During the War of 1812 the price of salt was so advanced that operations were resumed, and continued there until 1815, when the work was stopped. It was not again resumed until 1861, when, on account of the blockade of the Southern seaports, salt became expensive. As the supply of brine was not sufficient to meet the requirements, an attempt was made to deepen the wells, and in May, 1862, a body of rock salt was encountered at a depth of about 16 ft. The mining of rock salt in pits was then introduced, and about ten pits were dug, the salt being found at from 14 to 20 ft. below the surface. No official record of the salt taken from these works was kept, although it is said that there were from 400 to 600 men employed, and that 22,000,000 pounds were mined during the 11 months they were in operation.

The Report of the American Bureau of Mines, published in 1867, stated that this method of pit mining would possibly endanger subsequent successful shaft mining. This prediction was borne out, as the shaft afterward sunk to the salt body had to be abandoned because of surface waters penetrating to the works. The first shaft sunk on Avery Island was a small one, 8 by 8 ft. and 83 ft. deep. This shaft was leased afterward to the American Salt Company, which continued it to a depth of 190 ft. and extended galleries east and west to distances of 270 and 370 ft. respectively, crosscuts being made from these galleries.

The problem of marketing the product of the mines proved to be so serious that the mining company cut a channel through two miles of marsh to deep water, and considerable trade was thus developed with Galveston, New Orleans and Mobile. Transportation was further improved in 1886 by the construction of a branch railroad from New Iberia. The later owners of the mines experienced much difficulty in keeping back surface water from the mine works, and were finally compelled to abandon the shaft. In 1897 a shaft was sunk some distance from the old one, and the new works were equipped with all modern appliances. The new shaft was sunk 500 ft. before any attempt at working the property was begun. It was evidently believed that by sinking the shaft to this destance, all danger from surface waters would be obviated.

Until 1898, all the production of Louisiana had been from mines at Avery Island. In 1898, the Gulf Company, of Morgan City, sunk a shaft on Belle Isle, but, through a misapprehension as to the conditions, the galleries were driven out from the shaft at too shallow a depth, and the surface waters, percolating through the thin stratum of soil and the roof of salt, forced an abandonment of the work. A new shaft was then sunk at a distance of about a quarter of a mile from the first. An evaporating plant was erected beside the original works and a considerable quantity of brine salt was made there in 1899, the grainer process being used.

Tell 'em you saw it in ROCK PRODUCTS.

The entire production of Louisiana in 1899 was 208,850 barrels. In 1890, Louisiana was included with "all other States." In 1890, the production was reported as 62,400 barrels, and in 1870, as 25,600 barrels. No production was reported at the census of 1860.

Massachusetts.

Many years ago a considerable amount of salt was made in Massachusetts from sea water, but this industry has almost entirely disappeared. The total amount made in Massachusetts in 1899 was 980 barrels. There was only one establishment engaged in the manufacture at the eleventh census, and the State was not reported separately. In 1880 the production amounted to 1,915 barrels, not quite double the production in 1899. In 1870, it amounted to 4,569 barrels, and in 1860, to 6,305 barrels.

New York.

Lemoyne, a French Jesuit explorer, in his journal, published in 1653, mentioned the salt springs of Western New York, which were at that time well known to the Indians. In 1770, salt from the Onondaga region was in use among the Delaware Indians, and was sold by them in Albany and as far north as Quebec to the pioneer whites. The first salt made by white men in this district was in 1788.

New York was the first State to pass any law regulating the manufacture of salt. This was done as early at 1797, and for over one hundred years the State maintained control of the Onondaga salt reservation, furnishing the brine to those who paid for it. The State built and repaired the settling tanks from which brine was delivered to the lessees. The law regulating the manufacture of brine on the Onondaga reservation was amended a number of times after enactment. At first four cents a bushel was charged on all salt made, and each lessee was required to manufacture not less than ten bushels a year, and prohibited from charging more than 60c a bushel. In 1805, the rate was reduced to three cents, but in 1812 it was advanced to 12½c in order to raise revenue for the construction of the canals of the State. The duty was reduced to 6c in 1834, and to 1c in 1846, which was maintained till the State sold out, in 1898. The State sold out simply because the revenue obtained was less than the expense of keeping up the works.

During the first 44 years only boiled salt was made on the reservation, and during this period the production increased from 25,474 bushels in 1797 to 2,622,305 bushels in 1840. The manufacture by the solar process began with the production of 220,247 bushels in 1841. In the same year the amount of fine salt made was 3,120,520 bushels, making a total product of 3,340,767 bushels. The salt production on the reservation continued to increase gradually until 1862, in which year 1,983,022 bushels of solar salt and 7,070,852 bushels of boiled salt were produced, making a total of 9,053,874 bushels. This was the largest product ever obtained. Since that time the production has shown a declining tendency, which from 1885 to 1896, was very pronounced, and practically all the decrease was in fine salt, and it was due largely to the development of the Warsaw district, which began to produce in 1883. The manufacturers in the Warsaw district were free from State control, and did not have to pay the one-cent tax imposed on the reservation, so it is no wonder this district developed while that one paying the State declined. Salt was discovered in the Warsaw district near the town of Wyoming in 1880, by parties drilling for oil, and two years afterward the salt industries developed there rapidly.

The Genesee district was opened about the same time as the opening of the Warsaw district, the first well being put down in 1883. The Ithaca or Southern New York district was developed in 1895, but the production of this region does not seem to have become a very important factor.

The mining of rock salt in New York began in December, 1885, by the Retsof Mining Co., near York, Livingston county. The mining is carried on at a depth of a little more than 1,000 ft., and the production varies from 150,000 to 250,000 long tons annually.

Ohio.

The first attempt at salt making in Ohio was made in 1798, at what is now called the Old Scioto Salt Works in Jackson county. At this time wells were dug only to the rocks below the surface soil, the brine flowing through the rock crevices into the wells. The brine was weak, full of bittern, and no attempt was made to purify the product even by draining. The brine was evaporated in kettles, from which it was trans-

ferred to pack horses and transported to the settlements, where it was sold for $3.00 and $4.00 a bushel, which continued up to 1808, and the brine springs were thought to be so important to the country that when the territory of Ohio was admitted as a State, in 1802, a tract six miles square, embracing the wells, was set apart for the use of the State. Two other reservations of one mile square each were made also; one in Muskingum County and one in Delaware County.

In 1804, the State legislature enacted laws regulating the salt reservations and fixed on a tax of 16c a year on each gallon of kettle capacity of a plant manufacturing salt, and no one was allowed to have a plant less than 600 nor more than 4,000 gallons capacity. However, the revenue did not exceed $500.00 in any one year, and as better discoveries were made on navigable streams, the old works became unprofitable, were abandoned and the reservations sold. The exact date of the development of the other industries is not positively known, but it is given as probably about 1825.

Oklahoma.

Oklahoma is one of the new States in the salt industry, the work beginning there as late as 1896, when works were established near Okeene, on the banks of a branch of the Cimarron River. One of the first attempts was made by Mr. J. M. White, who began by evaporating the brine in an old stove kettle, finally coming to the use of something like a sorghum pan, meeting with better success. There are four establishments there now, though they all use the original primitive plants. The amount made in the territory in 1899, was 4,856 barrels.

Pennsylvania.

The manufacture of salt in the State of Pennsylvania has ceased to be an industry of any moment, although at one time it was of comparative importance in the Western part of the State. The industry has been mainly confined to the valley of the Conemaugh River, where it was quite firmly established early in the present century.

In the census report for 1860, it is stated that a company of Philadelphia and Pittsburg merchants erected salt works on Big Beaver Creek in 1784. In 1810, one establishment in Indiana county was reported as having made 600 bushels of salt, worth $1,000. About that time William Johnson commenced boring on the Conemaugh River, near the mouth of the Loyalhanna, struck an abundant fountain of salt water at the depth of 450 ft., and erected furnaces, pans, etc., by which he made about 30 bushels a day, and sold at a high price. Other wells were soon sunk to a depth of 300 to 600 ft. in the coal measures of that region, and the price of salt was reduced as low as $1.00 per barrel, but afterward fixed at $2.00, which afforded a profit. The pumps were first worked by horse power and afterward by small engines. In 1820, the business employed a capital of $33,000.00 in Western Pennsylvania, and in 1826, there were thirty-five salt works on the Conemaugh and Kiskiminitas Rivers, three on the Alleghany, and others were being constructed elsewhere, one of which was expected to yield 1,500 bushels daily. Salt was supplied at the works for from 20 to 25c per bushel, while it brought 50c in Kentucky, Ohio and Illinois.

In Egle's History of Pennsyvania, it is stated that about 1812 or 1813, the discovery of a salt spring was made by an old lady named Deemer at low-water mark of the Conemaugh River, about two miles above the present site of Saltsburg. This discovery shortly led to the development of an important industry in Indiana county. A well was sunk to the depth of 270 ft., and an abundance of salt water was found. The salt was manufactured by boiling the water in large kettles, using wood for fuel, and was sold at $5.00 per bushel. Afterward, as the number of wells and plants increased, the price was reduced to $4.00 per bushel. Improvements were made in the methods of pumping the brine and manufacturing the salt; coal was used instead of wood for fuel, and steam engines instead of horse power for boring and pumping. The place was known as the Great Conemaugh Salt Works. The same authority states that between 1820 and 1830, 21 salt works, with a total of 24 wells, were in operation on the Conemaugh River, in Westmoreland county. Mr. James M. Swank, in his report to the Centennial Commission, states that all but three of these works had been abandoned in 1876. Mr. Swank states that as early as 1811, salt works, which are reported to have produced considerable salt, were erected on the Sinnemahoning Creek, probably in what is now the county of Cameron.

The census report of 1820 makes a brief reference to salt manufacture in Pennsylvania in that year, but in most instances shows values only, without quantities. Armstrong county had 38 pans in operation, and the value of the product amounted to $18,000.00. Erie county had 18 kettles of 32 gallons each in operation. Indiana county had 32 pans and 190 kettles, the price being given as $1.00 per bushel. Westmoreland county had 6 establishments, and produced 70,000 bushels, worth $1.00 per bushel.

The manufacture of salt was the only industry reported in Indiana County in 1820. The *Gazetteer* of Pennsylvania, published in 1832, shows that the total product of Pennsyvania in 1830, was 100,000 barrels of 5 bushels each, valued at $200,000.00. In 1840, it is reported to have been 549,478 bushels, an increase of about 10 per cent. in ten years. In 1850, there were 47 establishments, and the production amounted to 919,100 bushels, valued at $206,796.00. In 1860, the number of establishments had decreased to 34, but the product had increased to 1.011,800 bushels, with a decrease in value to $196,916.00 A considerable decrease in the industry was shown in 1870, when there were 27 establishments, producing 579,970 bushels, valued at $187,312.00. In 1880, the number of establishments had been reduced to 16, but the product had increased to 851,450 bushels, with a decrease in value to $177,415.00. In 1890, there were only 3 of these establishments in Pennsylvania, but the product was a little more than that of ten years before, amounting to 862,000 bushels, valued at $156.398.00. In 1899, there was only 1 establishment in Pennsyvania, and the statistics were included under "all other States."

To be Continued.

Germany as a Factor in Salt.

Germany sends some salt to the United States, no great quantity, it is true, especially when compared to the imports from the British West Indies, the United Kingdom, Italy and some other countries, but it was something over a million pounds for the year ending with May, 1901, enough to show that Germany is a country in which salt is successfully produced.

Probably the most famous salt mines of Germany are the Stassfurt mines in Prussia. Rock salt was discovered there in 1843, at a depth of 816 ft., according to *Kuhlow's German Trade Review*, but it was a poor, bitter salt that could not be used at that time. Boring was continued in a slow, and rather half-hearted manner, and good salt was finally struck that proved to be 1,055 ft. thick, and from this has developed one of the great salt regions of the world. This development did not come at once, however, but was helped along later by science discovering new uses for this product. In 1860 Dr. A. Frank, chemist to some beet-root sugar works in Stassfurt, first drew attention to the value of these waste salts, both as fertilizers and as raw materials for the manufacture of potassium chloride, carbonate, and nitrate. Dr. Frank started the first potassium salt works in 1861 with a very small capital. By the end of the following year he had already several rivals who were better furnished with means, so that the total annual production of four works amounted to 20,000 tons of waste salt. By 1864, 139,000 tons of waste salts were passed through eighteen works in Stassfurt and Leopoldshall. With 1865, the salt mining industry, which had so far been a Government privilege in Prussia, became free, and the new industry of the waste salts, whose value everybody understood now, developed rapidly. In 1900 twenty potassium works produced 3.037.258 tons of crude potassium salts, and 927,000 tons of rock salt (sodium chloride).

Dr. A. Frank, the pioneer of this huge industry, is still active, and Kuhlow's figures are taken from a paper which he read in Berlin in commemoration of this jubilee. The works are now all united in a syndicate, which last year gave employment to 16,000 men and a staff of 800; their 513 boilers and 738 steam engines develop together 47,000 horse-power. Their productions had in 1900 a value of almost three million pounds. A very large share of the business is due to the trade in fertilizers, which still seems to be capable of enormous expansion, whilst the chemical industry takes a more quiet development. Germany makes use of 800,000 tons of potassium manures annually; about 700,000 tons go abroad—almost one-half of this mass to the United States.

It is reported that the farm and salt works of Hendricks Bros., Cardwell, N. B., has been sold to a syndicate of English capitalists.

Tell 'em you saw it in ROCK PRODUCTS.

BUSINESS BRIEFLETS.

The Weir Co., Salt Lake City, Utah, expects to harvest 35,000 tons of salt this season.

A large shipyard and stave and barrel plant is being established by the New Jersey Salt Co., Baltimore, Md., on the Pascagoula River near Scranton, Miss.

It is reported that the Pennsylvania Salt Co., Detroit, Mich., contemplates putting up a number of buildings, and will employ at least 4,000 men when the plant is completed.

A report comes from Chattanooga, Tenn., that salt has been found near the line of Chickamauga Park, and that a wealthy salt manufacturer of Cleveland, Ohio, will buy the property, establish a refinery and produce salt.

W. Bagwell. Lytle, Ohio, and some Cleveland, Ohio, parties are said to be interested in the purchase of property at Lytle, where they will develop a salt mine, establish a refinery and produce salt on an extensive scale.

H. A. Kerns and a party of other men of Gunnison, Utah, have been prospecting for salt in that vicinity, and it is said they have discovered immense beds of pure rock salt, and will probably organize a company and erect a plant.

The Leslie Salt Refining Co., San Francisco, Cal., was recently incorporated with a capital stock of $500,000.00. The directors are: Arthur L. Whitney, San Mateo; Albion Whitney, San Francisco; Lewis E. Spears, Alameda, and Frederick Hewitt, Napa.

The G. N. Skinner Salt Co., Detroit, Mich., has been incorporated with $25,000.00 capital stock. The officers are: G. N. Skinner, president; Francis E. McCarthy, secretary; John A. Russell, treasurer, and the above with John S. Ross and Thos. E. Griffin are stockholders. This company takes over the business of Geo. N. Skinner, 1419 Majestic Building.

Henry S. Fleming has been appointed secretary of the International Salt Co. Mr. Fleming has been secretary and treasurer of the Anthracite Coal Operators' Association for a number of years.

The Oatka Mining Co., Albany, N. Y., has been incorporated by Edward M. Bassett, attorney for the company. Capital stock, $500,000.00. The incorporators are: Lieut. Gov. Timothy L. Woodruff, ex-Gov. Geo. E. Lounsbury, of Connecticut, and others. This company will produce rock salt.

The Michigan Rock Salt Co., of Detroit, Mich, has been at work for some time in the Rouge district sinking a shaft and have at last struck solid ground. They expect to have to penetrate some 700 ft. of limestone and sandstone yet, before reaching the rock salt strata, which will probably take them another year. They feel, however, that the most difficult part of the task is over, which consisted in sinking through 92 ft. of surface earth and clay with marshy conditions. This company is capitalized at $600,000.00, with Geo. N. Skinner, of Detroit, Mich., as president; John A. Russell, vice president; Emery Wendell, treasurer; and Thos. E. Griffin, secretary.

The Autauga Oil and Fertilizer Co., which was recently organized at Prattville, Ala., with a capital stock of $50,000.00, will erect a cotton seed oil mill and fertilizer factory.

Wm. B. Fink, Edward J. Grace, James E. Brady, George M. McGreevy and John H. Pinning are the incorporators of the Animal Products and Fertilizer Co., of Baltimore. The capital stock of the company is $100,000.00, which is divided into 10,000 shares of $10.00 each.

The Singer & Johnson Fertilizer Co., Nashville, Tenn., has purchased sixty acres of land with buildings at Kinney, Tenn., where they will install machinery for manufacturing fertilizers, which together with the Nashville plant, will have a capacity of 40,000 tons a year.

The Standard Fertilizer Co. has been organized at Birmingham, Ala., with a capital stock of $1,000,000.00. Capt. John R. Brain is the moving spirit in the enterprise. It is said the company will erect works at Bessemer, but its principal office will be Room 21, Maberry Bldg., Birmingham, Ala. They will make fertilizers from furnace slag. It is said the plant, for the purpose, will cost between $250,000.00 and $300,000.00 to equip. They expect to have it in operation in six months. The charter of the company is said to cover the right to manufacture cement. Capt. Brain stated that the operations would be confined to fertilizers.

For the Retailer.

The Make-Ready Season.

The retail dealers' busy time is here—the front end of it at least—and it brings with it certain incidents and worries, the burden of which may be lightened a little with proper effort. This effort, however, should not be spasmodic, nor should one wait till the busy season comes and the worries fall thick and fast to make the effort. When a man waits till incidents of business drive him to do certain things he is getting too near the line where the business runs the man instead of the man running the business, and thereby inviting a more up-to-date man to go into business and get his trade. There is nothing in being fore-handed, either, that implies that because you have left something undone that ought to have been attended to during the dull winter months you should put it off till next winter, for next to doing things beforehand is to do them instantly when the necessity for the doing stares you in the face. In other words, it is bad enough to leave till to-day what you ought to have done the day before yesterday, without putting it off till the day after to-morrow.

Put the Buildings in Order.

One of the things that should be looked after before the busy season and the spring rains come along, is that of putting the buildings, storage sheds and yards in condition. If you have a roof over the lime house that leaks, or there are cracks and holes about it that will give trouble and cause waste and loss, they should all be attended to before the spring supply is laid in. The same applies to all other buildings, and the yard, too, should be put in condition; stocks carried over should be overhauled, tabulated and put in shape so that they will look more like something to sell than many do. It is not unusual to see odds and ends of building material, left over stock, piled around so promiscuously that the whole business looks like a scrap pile, and it should not require argument to convince a dealer that by leaving material in this shape he is inviting his customers to strive for junk-yard prices on such material.

Should a Lime House Be Tight?

There seems to be some difference of opinion about the manner of constructing a lime house, some contending that such a building should be as near air-tight as possible, while others say there should be some ventilation. There is one thing that all agree on, though, and that is that all possible means should be resorted to to keep out moisture. It is moisture that causes lime to slack, and the advocates of tight houses say that heat cuts no figure, and it is, therefore, not necessary to ventilate. Probably it is out of this idea that comes the iron tank for storing line, which is said to be an excellent thing, the only bar to its general use being the item of first cost.

Disposing of Old Stock.

When the buildings are put in condition from an outside view-point, then comes the matter of looking to the inside—cleaning up and disposing of any old stock that may be on hand and providing a new supply. This applies not only to lime, but to cement and plaster, and there is room for a whole string of sermons on the way people sometimes dispose of this stock.

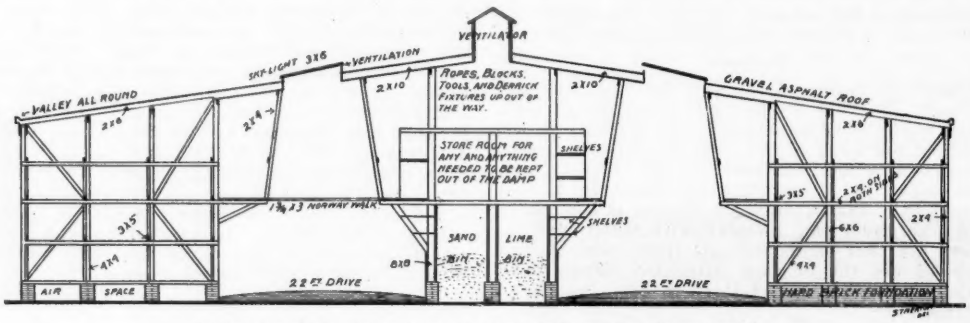
There was a story went the rounds once about a cement order that illustrates one point for a sermon. A certain dealer received an order for cement that called for more than the whole of his fresh stock, but in casting about for some way to fill the order the dealer discovered that he had enough old stock to make up the balance, and he conceived the idea of mixing the old and new stock up together and selling it as fresh stock. And that is just what he did, but the man that bought it discarded the whole lot as being inferior, and it was thus that the small stock of old material spoiled the larger lot of fresh stock. The moral to this will apply just as well to lime and plaster as it will to cement, but we need not conclude from this that the old stock is entirely worthless, for it is not. The point to it all is that you should be perfectly honest with the consumer—nothing else pays. If you have some old stock and don't know just what to do with it, consult some friendly contractor, and the chances are that you will discover a way to use it to advantage, but do not, under any circumstances, undertake to misrepresent your stuff.

A Two-Sided Question.

"But," the retailer may be tempted to inquire, "why not let us take some steps to prevent stock getting stale—why don't manufacturers strive to furnish us stock that will keep fresh a reasonable time? And that's not a bad point to consider, either. There are two sides to the question, however, and maybe three. First, it is the duty of the retailer to carefully estimate the possible consumption, so that he may not overstock through ignorance, a side issue to which is the freight problem, for it is generally essential to buy in car lots to keep down freight expenses. The other question is one that is up to the manufacturer, and if you think your lime, cement or plaster has been deteriorating too rapidly, and are sure the fault is not yours, it is time to communicate with other manufacturers and see if you can do better. There are manufacturers in all these lines who seem to be ready to guarantee their stock for a certain time if it is properly cared for, and with such an offer as this a dealer should be able to so figure out his requirements as to not have an excessive amount of waste from old stock.

The Part the Package Plays.

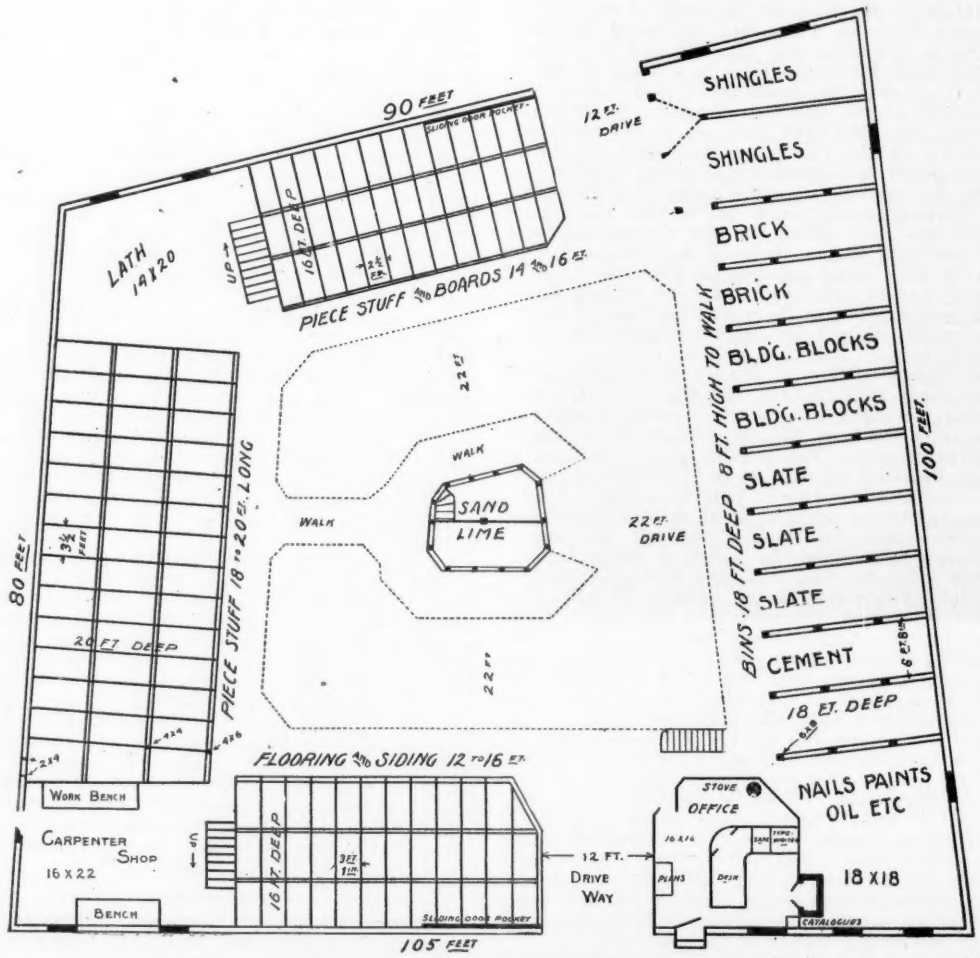
The package has something to do with keeping stock, too, even though lime is handled in bulk considerably, for the package helps keep out moisture, and the stronger the moisture-resisting qualities the better would be the package—all other features being even. Take plaster or cement for example, and the paper-lined barrel is undoubtedly the best package. The only objection to it generally on the part of the manufacturers is that it is expensive, and, as they must work on a small margin of profit, frequently swallows a good part of that margin. You would think maybe that the only recommendation for paper packages is in their cheapness, but it seems that they are better than cloth for this purpose because of their moisture-resisting qualities. That is really the only point in favor of a paper package aside from its cheapness, for they are easily torn, and thus help swell the waste item.



PLAN OF E. M. LONG & SONS' SHEDS—FRONT ELEVATION.

Bags Wrong End Up.

Speaking of bags, there seems to be always a war on between the retail dealers and the manufacturers about bags being tied instead of sewn. The manufacturers say that it not only costs more to sew a bag, and this cost item is one thing they must always keep in mind, but in using returned bags that have been sewn, they find that the users have a habit of ripping them open with a knife, mutilating the end of the bag more or less. There is a queer side to this trying question, too,



PLAN OF E. M. LONG & SONS' SHEDS—FIRST STORY.

in that one reason handlers object to bags that are tied is because they can not get hold of them as well for handling. Some get around this by handling sacks with the tied end down, saying that they can get a good hand-hold on the corners of the other end. This matter of handling has even been recommended by writers in trade journals, and it may be a good thing, but suppose the tying has been so poorly done that it will not hold?

The Question of the First Part.

But, to return to the question of the first part, there are sheds and houses in great variety, due in some measure to local conditions, but at times, to the genius of the designer and others, seem to be thrown together without regard to convenience or anything else. An exchange of ideas by retailers on storing and handling building material would be both interesting and instructive, so come along and tell us how you manage it in your locality. An elegant shed for general purposes, in which we might say the main line is lumber, belonging to E. M. Long & Son, Cadiz, Ohio, was illustrated some time back in the *American Lumberman*, which has points worthy of study.

Cement and Flint Production.

A preliminary statement issued by the United States geological survey regarding the cement, flint and feldspar industries says:

"The production of slag cement in 1901, amounted to 272,689 barrels; of natural rock cement, to 6,834,823 barrels; of Portland cement, to 12,711,225 barrels—a total production for the year of 19,818,737 barrels. The total production for 1900 was 17,231,150 barrels.

"The production of flint in 1901 amounted to 32,740 short tons, valued at $133,298, which was a slight increase in quantity over 1900, but a decrease in value. The feldspar production showed a decided increase, the total quantity mined being 34,742 short tons, valued at $121,422 which shows a decrease in value of $52,237. This is partly accounted for by the fact that in 1900 91 per cent. of the output was ground by the producer, while in 1901 only 77 per cent. was so treated."

It is said that the M. F. Ryan & Co., Stonington, Me., will add considerably to their force of quarrymen and granite cutters.

Asphalt.

The offices of the Central Asphalt and Refining Co. have been moved to Port Neches, Texas, near the large plant there.

The West Indies Asphalt Co., at South Amboy, N. J., will locate their refinery at a more convenient point to New York.

The Asphalt Roofing Co., of Saginaw, Mich., has built up quite a business, and is finding a market for its asphalt all over the United States.

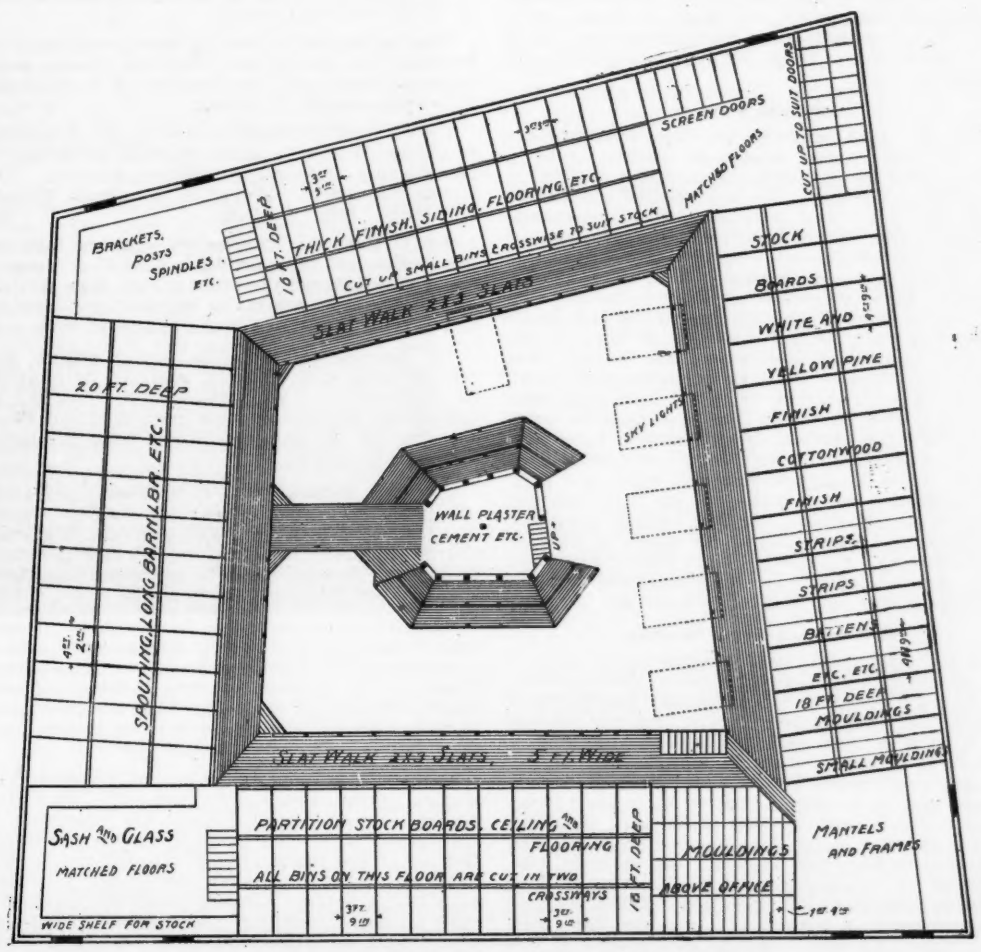
A concern to be known as The Central Asphalt Co. is being organized in Beaumont, Texas, to erect a plant and manufacture asphalt from crude oil.

It is said that Mr. H. Lockwood, who recently purchased property near Rockdale, Texas, has discovered a vein of asphaltum 5 or 6 ft. thick at a depth of 250 ft.

The Toledo Asphalt Co., Toledo, Ohio, has been incorporated with a capital stock of $20,000.00. Incorporators are; Chas. R. Clapp, Herman Merriman and C. E. B. Lawson, all of Toledo, Ohio.

It is reported that a company will be organized by Gen. S. T. Carnes, Henry Duffin, J. H. Sullivan, W. E. McGehee and others to do asphalt paving and deal in asphalt paint, oils and roofing at Memphis, Tenn.

The Northwestern Asphalt and Paving Co., of Seattle, Wash., seems to have been faring unfortunately, for a receiver has been appointed to take charge of its affairs. Mr. David P. Eastman is the receiver, and it is thought that the company will be able to pay out and get on its feet again soon.



PLAN OF E. M. LONG & SONS' SHEDS—SECOND STORY.

That Venezuela Asphalt.

For a number of reasons, asphalt is coming in for an unusual share of attention at the present time. The troubles of the leading companies in the asphalt business are continually aired and enlarged upon by the daily papers, and asphalt as a paving material is the subject of more general discussion than any other material in that line. Many of the readers of ROCK PRODUCTS will also remember various newspaper reports about the Venezuela asphalt lakes, and the following report of the United States Geological Survey on this matter will be of interest:

"The island of Trinidad, off the coast of Venezuela, South America, one of the British West Indian possessions, is, next to France, the largest producer of asphaltum in the world. The deposits are operated by an American corporation under a concession from the British Government, and, independently, from land not belonging to the Crown and whch was acquired by purchase. The chief source of the supply is a lake of pitch filling the crater of an extinct volcano. This lake lies 138 ft. above the sea level and has an area of 114 acres. The supply is being partly renewed by a constant flow of soft pitch into the center of the lake from a subterranean source. The shipments of lake pitch for the last ten years have averaged over 80,000 tons a year. The flow into the lake is at the rate of about 20,000 tons a year, so that the renewal of supply is less than one-fourth the amount taken out. The depth of the lake, however, is about 135 ft. at the center, and considering the extent of the deposit, there need be little apprehension of the early exhaustion of the supply of Trinidad asphaltum. The material from this lake is known as "lake pitch." Distinctive from this, is what is known as "land pitch," the overflow in past times of pitch from the lake and deposits of similar nature but different origin. The overflow pitch mingled with the soil, and while it, with the other land deposits, forms another source of supply, the amount of mineral matter it contains is greater than the lake pitch, and the latter is in consequence preferred."

Cement in Paraguay.

Consul John N. Ruffin, writing from Asuncion, has the following report on the outlook for cement trade in Paraguay:

"There is a large consumption of Portland cement here, as most of the houses are built of brick. One house alone sells about 48,000 barrels per year. Frame houses are not liked in this country, because they afford hiding places for all manner of insects. People here build their walls exceedingly thick, on the principle that both heat and cold are thus excluded; they also cover the houses on the outside with cement.

"The chief brands coming to this market are: Aguila, which comes in barrels of 120 kilograms (264 pounds) and costs $1.50 and $1.60 laid down in Buenos Ayres; Cardinal, which comes in barrels of 100 kilograms (220 pounds), and costs $1.70 gold; Leon, which comes in barrels of 100 kilograms, at $1.65 gold; Pato, in barrels of 100 kilograms, at $1.50 to $1.60. This last class is quite inferior, and does not seem to be popular in this market.

"It is a great deal better to send heavy material like this to Buenos Ayres, sending shipping documents to a transshipping company and advising it by previous letter (in Spanish) of the steamer on which the shipment is made, so that the lighters may be ready. These lighters remain in the port of Buenos Ayres perhaps six or eight days, awaiting a steamer for Asuncion. The freight on such a cargo boat is $2.00 less than if the goods are shipped on one of the passenger boats.

"I understand that some of the New York lines have arrangements with the Mihanovich Steamboat Co. to transship their cargo on a river steamboat, which is as cheap as obtaining a through bill of lading from New York.

"The usual term of credit here is six months."

Col. Theodore Bruback, president of the Nebo Brownstone Co., Salt Lake City, Utah, seems to be entitled to a place in that class of men who will let no obstacle block the success of an enterprise. When the possibilities of the stone at Mount, Nebo, called for his attention, and he became interested in the development of the industry there, he found an obstacle in the way in the shape of seven miles of distance that intervened between the quarries and the railroad. What he did then was to simply build a railroad to the quarries, and the development of the industry since then has fully justified the amount expended.

Mechanical Progress in the Stone Industry.

There is no industry but what is continually progressing mechanically, especially in the United States, for progress is present in the air so much that it is impossible for a wide-awake man to keep from moving along. There are men, however, and in the stone business, too, who resist progress in a way. I was recently an interested listener to a conversation between the head of a big stone industry and a machinery man that brought this fact home to me. It seems that the stone man had ordered some machines that were to be the same as other machines he had been using. That was apparently a simple matter, and an easy proposition for the machinery man, but when the machines came to hand there was some difference in the way of improvements, and the stone man actually objected to these, not specifically, but on the general ground that he wanted just what he ordered. When it was pointed out to him that the changes in the machines were in the way of improvements, that the machinery house being at all times on the lookout for ways to improve their machinery, had made the changes in order to furnish a better machine, he was not satisfied; said that he had no positive knowledge of this being an improvement, and that he did not propose to do any experimenting, that he knew just what the old machines would do, etc.

Blocking the Wheels of Progress.

Well, do you know, I sat for a long time pondering over this discussion. I could find certain points in favor of the stone man, for it is a well-known fact that people sometimes lose both time and money experimenting with new propositions in this way, hoping all the time to develop an idea that will make money. And, anyway, it is the place of the machinery men who offer machines to the trade to do the experimenting, and not offer a new thing till they are positive that it is an improvement over the old. That was the stand the stone man took, and it was good ground, too, in a way, but it put me to thinking about an experience along the same line that I was once mixed up in. A certain mill man for whom I had done considerable building, concluded to branch out and put in a new mill at another location, the new one being practically a duplicate of the old one. This applied particularly to the engine, for he was very proud of the one operating his old mill, so in placing his order he specified a new engine of the same size, make and kind of the old one.

The Case of an Engine.

There was some little comment when the machinery arrived on the fact that there were details of the new engine that were different from the old one, but no objection was heard till after the engine had been put to work and accidently developed a hot crank pin. Then the owner of that engine went all to pieces, swore he would ship the engine back, and that the company simply had to furnish an engine that was just like the old one. He simply "pawed the earth," and made his word good, so far as writing the company what he thought about them sending an engine that was not like the one he ordered in every detail. To say that the engine manufacturer was surprised was putting it mildly, for the old engine was one that was made some ten years previous, and they had greatly improved the details in the engine make-up since then. They wrote the mill man that they were surprised that he would complain at getting a better engine than the old one, and assured him that if the new engine was given a fair trial and found faulty they would make it good. Of course that was the end of it all, for the new engine was a much better engine than the old one, but how can we get around the impression that the mill man was not standing in the light of progress? The point I make out of all this is that any proposition in the way of improvement is worth attention; the machinery men should not ask for more, and they should do the experimenting, but when a reliable machinery house offers an improved machine and backs it up, there is no excuse for a user to kick at it on the ground that he does not want to try experiments. When a man does that he is resisting progress, no matter what industry he is in.

Progress in the Stone Industry.

In the stone industries there is plenty of evidence of general and continuous progress, and it is also apparent that there is a chance for further progress. We can look back to the older methods, the first to be applied in this country for working stone, where fires were built around a boulder and then heavy iron balls and sledges used to reduce it to fragments that could be handled, and turn to the modern channeling machine and say that great progress has been made. Yet there are some places where quarrying is still done in a rather primitive manner. This is not altogether due to lack of progressive inclination on the part of the people, either, for the nature of the stone and the local conditions determine largely the method. Blasting is the great thing in the quarry when the size and form of the blocks is not a consideration, and it enters largely even when form and shape are important matters. Take granite, for example, and though channeling machines are used somewhat, the stone is so hard as to make the work both difficult and expensive, and there seems to be room in this work for inventions.

Quarrying With Wire Saws.

I saw a report about the Welsh slate mining industry being on the eve of a revolution in quarry methods, owing to the introduction of the wire saw in the work of quarrying, and I have been wondering if we could not use wire saws in many quarries where blasting and channeling do not work satisfactory. Sometimes I get to castle-building, and then I see in my mind, quarries that are on small hills in which a series of wire saws reach clear over the hill, and then I see others in which a small shaft is sunk, or a hole bored here and there at the ends to receive a wheel to carry the wire down, but then all these are dreams, and the castles tumble down. Still, there is room for more study and experimenting along this line than seems to be given, and I would like to hear the opinions of some others on the subject.

Improvements in Cranes, Etc.

There seems to have been more progress made in the manner of handling stone at the quarries than there has been in getting it out. We use derrick cranes it is true, and we have been using something of the kind ever since the stone industry passed the initial stage, but ever since the day when David Henderson, of Renfrew, Eng., invented the compound gear system that distinguishes the derrick crane, by means of which the effective radius of a crane can be altered, in 1845, there has been great improvement along the line of cranes and lifting and conveying devices. This improvement has been more marked of late years, since electricity entered as a motive power to quite an extent in this line, and though we may not have any special inclination for the electric cranes in the quarry, we must, at least, admit that the stimulus given to improvement by it gives electricity a claim for at least a kindly consideration.

Equipping a Quarry.

The fact that improvements have branched out in different ways, sometimes makes quite a problem for the man who has to select machinery and equipt a quarry. He must decide whether he will use individual cranes, with independent, and probably self-contained power equipment, or whether he will have a central power station for the whole system of cranes. Then, if he decides on the central power station, there is the question of whether he will transmit power by electricity, compressed air, or use a system of wire cables. I don't know just how others find it, but from my observations it seems as if quarry people have a decided preference for cables. I have frequently inquired why electricity was not used in some quarries where the equipment seems to have been put in regardless of first cost, and the general reason given is that it costs too much, not only in equipment, but in power to use it. I am not able to say anything on this subject from experience, so I pass it along for others to discuss, and along with it I would like to point that I have seen some mighty nice compressed-air lifts in machine shops and foundries—what about them?

First Cost and Cost of Operating.

If one could reduce quarry operations to a point of permanency of location so as to get the work in keeping with that of the foundry and machine shop, this crane problem could soon be reduced to a point of both ease and grace in operations, but as it is, there is always more or less of the temporary or make-shift business about it, for all know that it is only a matter of a short time usually till a little moving about must be done. The man who plans the quarry equipment, not only has to keep this in mind, but he must also consider in connection with it, the item of first cost and efficiency in operation. When a man goes to equip a quarry (I mean the man who furnishes the money), he may kick around at the item of first cost till a selection is made that will make the cost of handling the stone more expensive than with a higher-priced equipment, and when this fact dawns on him afterward he will likely kick because he can not get his stuff handled at as small a labor cost as some other man with a better equipment. But there is a chance to go to the other extreme, and put in an outfit that will never save enough in operation to pay the difference in price. There is a chance for a happy medium in all this, and that is what we are after —but the only way to get it is to be on the ground, study all the local conditions, consider the matter herein mentioned and various points that will come up. No man, no matter how well posted, can lay down general instructions for selecting an outfit and equipping a quarry, but there are pointers to be given and obtained, and that is what we are after.

G. HAWLIN.

Tell 'em you saw it in ROCK PRODUCTS.

PERSONAL MENTION.

The Buckeye Portland Cement Co., Bellefontaine, Ohio, is enlarging its plant.

Arrangements are being made to open the Cool Slate Quarry work at Brandon, Vt.

W. A. Caldwell has entered the building material supply business at Sullivan, Ill.

The Valdosta (Ga.) Guano Co. are said to be open for bids on the erection of a large acid chamber.

The Southwestern Slate Co., Carthage, Mo., now has its plant in operation, and will soon begin shipping.

News from Jacobsville, Mich., is that The Portage Entry Quarries Co. has shipped a load of blockstone to Marquette.

The Washington Monumental Cut Stone Co., Spokane, Wash., will add a new engine, stone saw and other machinery to its plant to handle granite and marble.

It is said that the new plant that the National School Slate Co. is erecting at Slatington, Pa., will have a capacity of 40,000 slates a day, and give employment to 300 people.

The Southern Roofing and Paving Co. has been incorporated at Louisville, Ky., by C. A. Monks, C. H. Carter and John C. Zulauf and others, with a capital stock of $1,500.00.

The Neshannock Stone Co. was incorporated at Pittsburg last month, and will begin at once to develop quarries. The directors are: S. M. Landgon, J. C. Biley and R. T. Rossell.

The Inter Ocean Stone Co. has been incorporated at Chicago, Ill., with capital stock of $35,000.00, to manufacture and deal in building material. The incorporators are: Edward S. Josenhaus, Thomas J. Holmes, John F. Haas.

Geo. D. Emery, of Chelsea, Mass., the well-known lumberman and vice president of the U. S. Gypsum Co., was in Chicago the other day en route to California, where he expects to spend thirty days, arriving home some time in the middle of May.

The Montgomery Slate Co., Mauch Chunk, Pa., recently held a directors' meeting at its quarries at Danielsville. Mr. Maurice T. Trexler, of Lehighton, was chosen vice president, and Chas. Johnson, of Norristown, former vice president, was made president.

Col. Mack Sullivan, who is interested in a limestone quarry at Millican near San Antonio, Texas, a sandstone quarry, near Fairland, and a granite quarry at Granite Mountain, reports that the stone business of Texas seems to be improving, and there is some activity among the quarries.

Manager Pierce, of Lord, Bowler & Co., Cleveland, informed us that they had recently sold a 15-ton hoist to the Wausau Bluestone Co., of Rock Glenn, N. Y., a 30-ton to the Housslin Marble Quarry, South Dover, N. Y. This company may build the heaviest hoists, as well as lighter ones, and other fine stone machinery.

While in New York the other day I met Walter Meyers, of the York County Lime Co., York, Pa. Walter advised me that they are operating a quarry five miles east of York, on the Frederick division of the Pennsylvania. The officers of this company are M. H. Sphar, president; J. Edgar Scoville, secretary; Walter Meyers, treasurer. They have a capacity of 1,000 bushels of dolerite a day, and the steel manufacturers claim it is the finest product they have ever seen.

Our Travelers.

The Way Things Seem to a Newspaper Man When He is Out Among the Trade.

IN THE KEYSTONE STATE.

SMOKY CITY NOTES.

Although operations in the Pittsburg district are lagging somewhat just now, there is every likelihood that building will be fully as brisk this year as it was last season. The only danger is in that the workmen may ask too much in the way of advances, and thus, by bringing on strikes and lockouts, stop operations for a time. This is the greatest, and apparently the only, danger in the way of a building boom, which will make a prosperous year for builders because the prices on material show no indication of going any higher than they are now.

The bricklayers, who are now getting 50c an hour, have asked for an increase to 60c, and it is said that the contractors will grant the increase.

The new Frick Building, which is said to be one of the finest granite and marble structures in the world, is now completed. The marble on the inside of this building was imported from Italy, and cost $200,000.00.

The Westmoreland Brick Co., whose works are at Hunker, Pa., say that they have about all the business they can handle, and that's no small matter when we consider that this company makes 9,000,000 brick a year.

The Maine and New Hampshire Granite Co., through its representatives, W. A. Lindsay & Co., Inc., of Pittsburg, has been awarded the contract for the granite to be used in the elevation of the Pennsylvania railroad tracks in Allegheny, Pa.

I found the Clydesdale Stone Co., of Pittsburg. very busy. They say they have no trouble, either, in getting more new business; the great difficulty with them is getting out and filling orders promptly.

Among the new projects of the Pittsburg district is one by the Pope Cement and Brick Co., who will open a quarry at Durban, Pa. Their headquarters are in Pittsburg, but they have some property at Durban in the way of rock suitable for ballast and concrete work.

A BIT OF TILE HISTORY.

Sometimes one gets hold of a bit of interesting history only after painstakingly seeking for it, and then at other times a bit of matter of this kind may be accidentally stumbled over. It is immaterial here how I reached the point, but I enjoyed a trip through a historic tile plant—the plant of the Star Encaustic Tile Co., Pittsburg, Pa. in company with the superintendent, Mr. Samuel Keys. This concern fills an important place in the history of the tile industry from the fact that it was the first concern to manufacture encaustic tile in the United States, and, from this starting point, they have been making history right along in the way of progressive methods of manufacture. The plant started some twenty-seven years ago, and has been operating continuously ever since. I gathered from my trip through with Mr. Keys that the most difficult problem in successfully manufacturing tile is in producing the color desired without impairing in any way the quality of the product. The colors are the result of mixing different acids with the clays and then burning the shapes under the proper temperature, but if the blending is not properly done or the material is improperly heated in the kiln, much loss may result. Mr. Keys has a secret process, which he discovered while a clay-worker in Germany, which he uses here, and by this means he has practically eliminated the annoyance that comes from loss by improper work, etc.

[Consul Haynes, in speaking of tile-making in France, has the following to say in regard to the coloring process: 'There are four ways in France to make tiles black—coloration of the clay with oxide of manganese, immersion in tar, baking in an atmosphere charged with hydrocarburet, and baking in the presence of pulverized carbon. The most common form employed is that of plunging the tile in some tarry liquid which has a temperature of 50 or 60 degrees C. (122 or 140 degrees F.). The general belief is that tar does not improve the resistance of the tiles to the temperature."—EDITOR.]

The pressed clay is put in what is called a "sager" to be burned. Ordinarily the "sagers" used by the Star Encaustic Co. last from five to fifteen years, but I was shown one that was filled and ready to go into the kiln that Mr. Keys said had been in constant use for twenty years, and, to all appearances, it is good for twenty years more.

This company is not the largest concern in the country making tile, but it can justly claim a place for its product along with any goods that are recognized as "standard." At the present time the plant gives employment to about fifty people, and produces 350,000 ft. of tile annually.

WILL MAKE SLAG CEMENT.

The International Cement Co., of Pittsburg, after experimenting for two years on a process for making cement from slag, have evidently met with the success they were looking for as they have concluded to erect a factory with a capacity of 2,000 barrels a day. The object seems to be to get a cement that contains the smallest possible amount of sulphur, and this company has experimented till they are satisfied they have the solution of the problem.

TOO MUCH RED TAPE.

The Siscilian Asphalt Paving Co., of Allegheny, Pa., are preparing to start up their works which have been shut down for several weeks. Mr. J. D. Stram, superintendent of the works, says that the "Ripper" law, which went into effect in Pittsburg and Allegheny last year, has been the means of holding back the paving of more than seventy-five streets in both cities. Formerly a three-quarter majority vote of the city council was sufficient to put an ordinance for paving through, but under the new law it takes the consent of two-thirds of the property holders along the route before improvements can be made.

AN HOUR WITH THE SALT MEN.

While in Allegheny I spent a pleasant hour with Mr. John Beck, of John Beck & Co., salt manufacturers. "We had some high water around here during the flood," said Mr. Beck. "There was eighteen inches of water in this office, and we all went about wearing rubber boots for several days. The water damaged our plant considerably but we were not compelled to suspend operations. Business is good with us, too, and we look for a continuation of present prosperous conditions."

The Pennsylvania Salt Co., of Philadelphia, Pa., are building a new plant at Wyandotte, Mich., to manufacture salt and chemicals. C. P. B.

JUST AROUND HOME.

One of the most pregressive, and consequently one of the most prospering, of Louisville industries is John Diebold & Sons, the stone and marble people. On a visit to their works, at 1417 Sixteenth Street, I found everybody on the hustle, getting out the orders which this firm had received. Among other large contracts which have recently been awarded them, is that for furnishing the stone for the new court house to be erected at Jacksonville, Fla. Their facilities for handling large contracts and making prompt shipments have much to do with their success.

A TYPICAL BUSY MAN.

Another busy Louisville man is Mr. C. K. Caron—though he is never too busy to give a few moments of his time to any one who wishes to see him. Mr. Caron is chiefly known to the people of the Falls Cities as the compiler of Caron's City Directories, though he is interested in other enterprises, and is the head of the Caron Stone Co. The quarries of this company, located in Hardin County, Ky., produce a high-grade stone which is used by marble workers throughout the country as a hone for smoothing purposes. It is also used quite extensively by jewelers for honing their instruments.

SUGGESTS A DOSE OF ASSOCIATION.

John Vernia & Co., New Albany, Ind., are doing some nice work in the monument line, and report bright prospects for a good season's business. The inquiries, they say, indicate a demand for a higher grade of work than usually prevails. Mr. Vernia believes in the formation of a retail marble dealers association, as a protection against some of the evils which have crept into the trade.

Tell 'em you saw it in ROCK PRODUCTS.

THE MAYOR OF NEW ALBANY.

The Hon. Edw. Crumbo, the present Mayor of New Albany, is another gentleman who is prominently identified with the stone industry of the Falls Cities. Though he is up till a late hour many nights administering the city's affairs and presiding over the deliberations of the city council, one can find him early at his office on Pearl Street looking over the details of his stone business. Mr. Crumbo is a hustler, and at any moment is likely to take a run over to Bedford and buy up the output of a quarry or two. He has a pretty good stock on hand right now, and is prepared to take care of all the business that comes his way.

WITH THE MONUMENT PEOPLE.

I stopped in the M. Muldoon Monument Co.'s place the other day. The Colonel himself was not in, but Mr. Walter Hyland, his general manager, does the honors very gracefully, and is able to take care of anything or anybody that comes around in Col. Muldoon's absence. The reputation of this firm is a national one, and they have erected some of the finest monuments in the country.

One of the handsomest monuments recently put up here, is that built by Jas. Clark & Co., of Louisville, on the lot of Mr. Jas. B. Speed in Cave Hill Cemetery. It is of Barre granite, and the base is larger by two feet than any other single block in Cave Hill. The design is strictly classical, and the work is a high tribute to the firm who executed it.

"PALMER" ARTIFICIAL STONE.

One of the interesting materials which is constantly growing in favor is the hollow concrete building block. The Falls City Artificial Stone Co., 218 E. Main Street, Louisville, are the Kentucky agents for a machine which makes these blocks, by the "Palmer System."

These blocks are composed of sand and Portland cement concrete, and when dry have the appearance and strength of natural stone. Each block is equal to about eighty-four bricks, and some of the handsomest structures now being erected are of hollow concrete blocks.

MAKING PUMICE STONE.

Back in the hills near Mooresville, Ind., is located an industry which is but little known even to people around this section of the country. It is the quarries of the Eureka Rubbing Stone Co., whose headquarters are in Chicago. These people quarry a good grade of pumice stone, which is hauled over to the Louisville side of the river and cut into one-pound blocks. Thence it is shipped to Chicago, where some of it is resawed and some pulverized. The furniture factories and machine shops use most of the output, and the Eureka Rubbing Stone Co. do a large business with these people.

AMONG THE STONE MILLS.

Blatz & Krebs, Louisville, have a file full of orders, and seem to be in the hunt when it comes to getting their share of business. Mr. Krebs says construction work is opening up nicely, and prospects for the season are fair.

The Peter Melcher Steam Stone Works, Louisville, employ a large number of men, and are running full time. They report trade good.

DOING A BARREL OF BUSINESS.

The Ohio River Sand Co. is doing a barrel of business these days. Their trade has increased to such an extent that their present equipment is proving inadequate to meet the demands and they have made arrangements to erect a sand elevator at the foot of Brook Street as soon as the waters of the Ohio go down sufficiently to allow the erection of a pier. This will be the first sand elevator around Louisville, and will greatly increase the facilities of the Ohio River Co. for handling their business J. F. H.

George C. Mackie, one of the pioneers in the granite business at Barre, Vt., passed away during the month, after a lingering illness of consumption. Mr. Mackie was born in Scotland in 1849, and came to Barre in 1880, in company with his half-brother, J. C. Simpson. These were the first two Scotchmen to operate the granite business in Barre. All the places of business in Barre, including the Barr Manufacturing Co., shut down during the afternoon of April 22 for the funeral of Mr. Mackie, at which the Rev. T. H. Mitchell, of the First Presbyterian Church, officiated.

Oil.

The Gaines Oil Field of Pennsylvania.

The Gaines oil field, as described by Mr. Myron L. Fuller in Part III of the XXII Annual Report of the United States Geological Survey, now in press, is located near the western boundary of Tioga County, Pennsylvania, at a point seventeen and a half miles south of New York State line. It extends for about three miles along the borders of Pine Creek in a slightly northeast-southwest direction, passing near the villages of Watrous, Gaines and Manhattan, in Gaines Township. The field lies about fifty miles east and ten miles south of the well-known Bradford oil field, and from twenty to twenty-five miles east of the Alleghany field of New York. It is of special interest as being twenty miles nearer the Alleghany front than any other producing field in Northern Pennsylvania.

Pine Creek, a branch of the Susquehanna River, along which the Gaines oil field extends, flows eastward and southeastward from Potter, through Tioga and Lycoming Counties. Part of its course is through a deep gorge, sometimes almost meriting the name canyon. The gorge is well developed in the vicinity of the Gaines oil field, at which point the creek bottom is more than 1,000 ft. below the surrounding uplands. Its tributaries, Elk, Long and Phoenix Rivers, likewise flow in deep, steep-sided valleys. Near Gaines the walls of the valleys rise more than 1,000 ft. in a distance of less than a mile, but when the crests of the ridges between the streams are once reached they are found to be quite level for miles.

The Gaines oil field includes two distinct pools, separated by an unproductive area of a little over half a mile. The westerly, or Watrous, pool yields its oil from a fine-grained sandstone, known to drillers as the Atwell sand. The easterly or Manhattan pool derives its oil from a series of shales, shaly sandstones, etc., known to drillers as the Blossburg formations. The total length of the Watrous producing belt is a little less than two miles, and its greatest breadth (near Watrous) is from 600 to 800 ft. It is cut four times by the meanders of Pine Creek. The Manhattan pool, roughly oval in outline, has an east-west diameter of about half a mile, the north-south diameter being slightly greater.

In 1884, 1885 and 1886, wells were put down near Gaines with but slender results. In 1898 a successful well was sunk upon the Atwell farm east of Watrous, and the name "Atwell" was given to the producing sand found at depths of from 700 to nearly 900 ft. Almost immediately the Blossburg formation, about two miles to the east and 200 ft. above the Atwell sand, was discovered. In 1900, the wells in the Atwell sand increased to nearly seventy, and the producing wells in the Blossburg formation increased to about thirty. In the Atwell sand the wells generally had a small but fairly constant yield; in the Blossburg formation many drillings resulted in failure, and the flows, large at first, declined rapidly, and, in many cases, were soon exhausted. The wells in the Watrous pool are too much crowded; in several instances they are about 100 ft. from one another, whereas to secure the most oil at the least cost they should be at least 300 or 400 ft. apart. The oil of the Atwell sand, Mr. Fuller thinks, probably belongs to a single pool, the differences in rate and amount of flow being due to differences in porosity and fineness of the sandstone. The Atwell sand belongs to the "Black Sand" group of the oil drillers, and is Devonian in age; and in its general characteristics it closely resembles the sands of the Bradford field of Pennsylvania and of the Alleghany field of New York. The "Blossburg formation," as it is called by the drillers, is not a single bed of sandstone, but is made up of a series of alternating sands, shales and shaly limestones. The variation in the production of adjacent wells is often very great. Thus Blossburg No. 3 started off with a flow of 500 barrels per day, and was giving 100 barrels per day when Blossburg No. 4, the "big gusher," penetrated the "pay streak," a few hundred feet away; and then No. 3 ceased to flow, and was abandoned. Blossburg No. 4 started with 2,100 barrels per day, and then fell off to thirty barrels per day in about two months. Its total product has been at least 30,000 barrels, which would occupy a space of 4,763 cubic yards. The oil is assumed to have been dispersed through the pores of a fine-grained sandstone, which could not hold more than 5 per cent. of its bulk—the percentage assumed here in calculating the minimum size of the pool. On this supposition the oil would be distributed through some 95,256 cubic yards of the sandstone. Assuming the bed of sandstone containing the oil to average 9 ft. in thickness, we should find that the pool would have an area of 31,752 square yards, or a little less than seven acres.

There is no difference in the quality of the oil obtained from the Atwell sand and from the "Blossburg formation." It sells in the market for 15 cents less per barrel than the Tiona oil, but commands a better price than any oil outside the Pennsylvania field. In the Atwell sand the oil enters the wells very slowly. Pumping has been finally resorted to in every case. In the "Blossburg formation" the oil rose to the surface in many wells, sometimes with force. The initial average flows from the "Blossburg formation" have been from three to ten times as great as those from the Atwell sand. But the Atwell sand wells show a much more prolonged and regular production. In the Atwell sand wells the oil reaches the surface free from water; in the wells of the "Blossburg formation" it is largely mixed with salt water. The oil from the various companies of Gaines field is piped nearly due south by the South Penn Oil Co. to the trunk of the Tide Water Pipe Line, some sixteen miles from Gaines; or it is disposed of by the John Ellis Co., of Warren, Pa., who remove it in tank cars.

The average contract price paid by the South Penn Oil Co. is said to be 65 cents a foot for drilling the wells. Natural gas is usually found separated from the oil in the Atwell sand and lying in higher portions of the rock; in the "Blossburg formation" the gas is largely incorporated with the oil. The supply of gas from the wells of the Atwell sand is barely sufficient for fuel for the boilers required in pumping, though small quantities are sold to a few buildings in Gaines and Watrous, out of pumping hours. The gas from the "Blossburg formations" is insufficient for use of any kind. Local gas pools have also been encountered outside of the limits of the Gaines field.

The producing portion of the Atwell sand lies about midway between the top of a slope and the bottom of the adjoining depression. Below it lies a belt of salt water, and immediately above is a zone producing gas. The oil occurs several hundred feet below the limit to which surface waters have penetrated the rock, otherwise the oil would have escaped upward. The limits of both the pools of the Gaines field appear to be definitely fixed by the surrounding dry wells and by the wells along the border of the producing belt itself. On the northern or lower edge of the producing zone, the wells generally show salt water; on the southern or upper edge the wells are low in oil and high in gas; and the well-known general rule is that salt water, oil and gas, found in the order named in the same rock, usually show the limits of productiveness. New wells sunk in the Gaines field are meeting with small success. With regard to the future of the Gaines oil field and its vicinity, Mr. Fuller concludes that the wells of the Atwell sand will probably continue to produce oil in limited amounts for some time to come; that small flows might possibly be obtained by a limited number of new wells in the Atwell sand, and that it is not impossible, though improbable, that further "gushers" may be found in the "Blossburg formations." The probability of any material extension of the present field is extremely slight. Oil sands have been found in other States at depths greater than any yet reached by wells in the Gaines field; and it is not impossible that oil may occur at great depths here; but the chances are not good, and nothing but drilling can decide the question. There are points in the region surrounding the Gaines field which appear to be as favorable to the occurrence of oil as at Gaines itself, but necessary local conditions may be lacking. There may possibly be undiscovered pools of small size in the surrounding region, but they would be hard to find because of their small extent, and sufficient drilling has been done in the region about Gaines to show the improbability of the existence of any large pool of oil.

Tell 'em you saw it in ROCK PRODUCTS.

Marble Men at Buffalo.

The National Marble Manufacturers' Association, which is composed of the leading manufacturers of plumbers' marble in the United States, met at the Genesee Hotel, Buffalo, N. Y., April 28, with President W. A. Higbee, of the Vermont Marble Co., Proctor, Vt., in the chair. The meeting was strictly executive and continued until one o'clock. The officers of this association are: W. A. Higbee, president, Proctor, Va.; John Mueller, vice president, Cincinnati, Ohio; and John R. Hugg, secretary and treasurer, Baltimore, Md.

The following firms were represented in person and by proxy: The Vermont Marble Co., Proctor, Vt.; The Rutland Marble Manufacturing Co., Rutland, Vt.; The Columbian Marble Quarrying Co., Rutland, Vt.; Wm. Buess, New York; Joseph Krulish, New York; Jacoby & Sons Co., Philadelphia, Pa.; Wm. Gray & Sons, Philadelphia, Pa.; Evans Marble Co., Baltimore, Md.; Hillamgarten Marble Co., Baltimore, Md.; Tennessee Producers Marble Co., Knoxville, Tenn.; Standard Marble Works, Cincinnati, Ohio; Chas. McDonald, Cincinnati, Ohio; Great Western Marble Works, Cincinnati, Ohio; Standard Sanitary Manufacturing Co., Louisville, Ky.; Illinois Marble Co., Edwardsville, Ill.; Elwolf Manufacturing Co., Chicago, Ill.; Sherman & Flarin, Chicago, Ill.; Detroit Marble Works, Detroit, Mich.; The Lautz Co., Buffalo, N. Y.; Buckeye Marble and Freestone Co., Cincinnati, Ohio.

"The demand for marble in the United States at the present time is greater than ever before in the history of the business," said Secretary J. R. Hugg, and the prospects for future requirements are even brighter.

"Few people have any idea of the large percentage of the total cost of our modern buildings represented in marble. I have heard that the interior marble work of the new Frick Building at Pittsburg, Pa., represents about 25 per cent. of the net cost of the structure.

"We are receiving good prices for our products, and do not anticipate making any advances.

"The car famine caused us considerable annoyance early in the spring, but the situation has been materially relieved so that we can move our stock as fast as it is finished."

Odd and Unique Epitaphs.

Jerry Hess, a manufacturer of tombstones and monuments at McGaheysville, Va., says that in an old cemetery at that place appears the following inscription on an old sandstone:

HIER LIGTDER LEIB DES VERST
CONRAT FRIST GEBOREN IMIAR
1745 x DEN x 26 IULIUS x UNE x IST-
GE x STORBEN x DEN 8 x DAG x AUGUST-
1800 ERHAT x SENALTER x GEBRAGT
AUF x 55 x JAR 13 DA.

At a lonely mountain spot in Highland County, W. Va., appears the following on a tombstone hewn from a mountain rock, the top of which is broken off, and the stub only shows the date of death, which was in the year 1600:

This life is done,
My race is run,
My resting place is here.
I got this rock
To mark the spot,
Lest man should dig too near.

Workmen excavating at Pittsburg, Pa., for the new tracks on the North side of Union Station Approach, unearthed a stone four feet beneath the surface, with the following unique inscription, which is said to be a fair specimen of the quaint style prevailing in the earlier days:

Sacred to the Memory
of
SIMEON PADDELFORD,
who died
November 8, 1824.

Aged 46 years, 10 months, 6 days.
No brother, no kind sister stood
Around his dying bed;
No wife with tender trembling hand
To support his dying head.
By foreign hands thy dying eyes
were closed,
By foreign hands thy decent limbs
composed;
By foreign hands thy humble grave
adorned;
By strangers honored, by strangers
mourned.

Quarries.

Contractor Barrett, of Adams, Mass., is opening up a new granite quarry.

James S. Van Etten has opened up a new stone quarry at Graniteville, Vt.

J. P. Newell and others are opening up a stone quarry near Carthage, Mo.

John Snyder, of Winsorville, Pa., has opened up a granite quarry on his farm.

The Barclay Eyre Quarry, Trenton, N. J., has been leased by William White.

A new quarry has been started at Websterville, Vt., by Joseph Rock and A. Provonchi.

The new mills of the Columbia Marble Quarry Co., Rutland, Vt., will soon be in operation.

The Electric Stone Co., Belvidere, Ill., has been making extensive improvements at its quarries.

It is reported that David Soop, a quarryman of Lanesboro, Pa., has filed a petition in bankruptcy.

The Trenton, (Pa.) Stone and Construction Co. has resumed work at its quarries at Lumberville, Pa.

Jonas Evans, a contractor of Lancaster, Ohio, has opened up a new sand stone quarry near that place.

The Capital Slate Co., Montpelier, Vt., has been adding some new machinery to its quarry equipments.

John Paul, of Massillon, Ohio, contemplates opening up a quarry, and may erect a mill in the near future.

Savage & Scofield, well-known contractors of Stone Quarry to the Puget Sound Bridge Co., of Seattle.

The Joplin (Mo.) White Lime and Cement Co. has completed the equipments of its quarry and has begun operations.

Case & DeHuff, of Lebanon, Pa., have leased a sand quarry at Bunker Hill, formerly operated by the A. G. DeHuff estate.

The Columbian Marble Quarrying Co., Rutland, Vt., are putting in two new mills, including 14 new gangs and 300 h. p. engine.

City Engineer Main, of Rockford, Ill., has been pumping out the local quarries and expects to put them in order for the season's work.

Charles Geise, who has operated the quarry near York, Pa., is installing a new platform scale and making other improvements about the place.

Messrs. Peck, Drummer and Simpson have purchased the quarry of Mr. Thompson, of South Dayton, N. Y., and will operate it this summer.

The Green Stone and Quarrying Co., Sturgeon Bay, Wis., opened up their works at full blast the first of April, and expect a big season's business.

Reports from South Delta, Md., say that there is a rumor afloat that a $2,000,000.00 company will be organized soon to open a slate quarry near that place.

An immense amount of granite was opened up recently by the Red Stone Quarry, Westerly, R. I. It is reported that 1,300 to 1,400 tons were moved from its bed.

Chas. B. Ramsey, a contractor of Topeka, Kan., who has a contract for furnishing curb stone for Topeka this year, is interested in opening a new quarry at Fort Scott.

Superintendent Sloan, of the House of Correction, Chicago, Ill., is said to have discovered a fine deposit on the farm attached to the institution and belonging to the city of Chicago.

It is reported that the Aberdeen (S. D.) Marble and Granite Co. has purchased the quarry and polishing plant of the Light Granite Co., at Ortonville, and will probably remove the machinery to Aberdeen.

The Golding Sons' Co., Trenton, N. J., has been incorporated by Chas. E. Golding and Wm. G. McKenzie, Trenton, N. J., and Frederick P. Golding, of Hockisson, Del., with a capital stock of $1,000,000.00. They will do mining and quarrying.

F. W. Katterjohn, who has a large force at work quarrying near Princeton, Ky., is establishing a town there named Cedar Grove. Mr. Katterjohn has a contract with the I. C. Railway and will employ about 300 men getting out ballast material.

There has been some changes in the personnel of the Passaic (N. J.) City Brown Stone Co., Judge James Mabury, at Clifton, N. J., taking active charge of the affairs. The company seems well provided with orders and is planning to extend the business.

It is reported that Carthage (Mo.) Dimension and Flagstone Co., which has for four years handled the product of a number of quarries at that point, has decided to discontinue business, and the quarries will henceforth conduct their business individually.

The American Black Marble Co. has been organized by Chas. Lawton, of Wabash, Ind., to open up extensive marble quarries in Virginia. Capital stock, $300,000.00. The new company owns 1,200 acres of land on the Chesapeake & Ohio R. R., on which it is said there are six rich quarries.

W. B. Myers and his son Frank, have organized the Myers Stone Co., at Carthage, Mo., and opened up a new quarry, making the eighth quarry in that district. They have been operating a channeling machine for some time and have equipped two gang sawmills, with provisions to add two more.

A stock company has been incorporated to operate the Morrison and Whitney white marble quarry, near Gouverneur, N. Y.; capital stock, $75,000.00. The stockholders are: Chas. A. Lux, of Clyde, and Edward Morrison and D. C. Whitney, of Gouverneur, N. Y.

The American Stone Co. has been incorporated with a capital stock of $5,000,000.00. The incorporators are: Philip B. Parker, of Worcester, N. Y., James B. Gillie, of New York, Jno. F. Treacy, of Jersey City and Geo. W. McKenzie and Jno. F. Gough, of Brooklyn. They will mine and quarry stone and marble.

The Lakeshore Stone Co. has leased the quarries of the Lannon Stone Co., at Lannon, Wis. The general management of the work will remain in the hands of Frank Merrill, who will be assisted by A. J. Blair, former manager of the Lannon company. This company has, among other contracts, one to supply the Illinois Steel Co. with fluxing stone.

The Westfield (Mass.) Marble and Sandstone Co. has begun the season's work at its quarries, and expects to get out a larger amount of marble than during any previous year. This company has had its mill at work all winter, but they had practically exhausted the supply of rough material when the time came for opening the quarries for the season.

The Sky Blue Marble Co., Lincoln, Neb., has been incorporated with a capital stock of $150,000.00. Judge E. A. Tucker, of Humboldt, Secretary of State Marsh and E. Bignell, of the Burlington, are among the incorporators. They will quarry a vein of sky-blue marble which has been located near Riverside, Cal., and said to be the only one in America.

Ernest R. Fletcher, of Hardwick, Vt., is said to have purchased the entire interest of the Fletcher Granite Co., located at Woodbury. This property consists of 150 acres of quarry land, two cutting plants and represents an original investment of over $100,000.00. Owing to some disagreements the plant has been idle for some three years or more now, but will be put in operation again.

The Western Consolidated Granite Co., of Chicago, Ill., is reported to be closing deals for six Wisconsin quarries on which it has held options for some time. The headquarters of this company will be in the Chamber of Commerce Building, Chicago, Ill. The officers are W. B. Baker, Waupaca, Wis., president; Chas. R. Carpenter, of Racine, Wis., vice president; A. N. Eastman, of Chicago, Ill., secretary, and Jno. P. Odell, of Chicago, Ills., treasurer. It is said that this company will add new crushing machinery shortly and such other machinery as may be necessary to take care of the trade.

Tell 'em you saw it in ROCK PRODUCTS.

The Medina Stone Co., at Albion, N. Y., has its new offices in the Harrington Block handsomely fitted up. Altogether the outlook for the syndicate business in Orleans County is good.

The Standard Stone Co., of New York, N. Y., has been incorporated with a capital stock of $100,000.00. They will quarry for granite, marble, etc., etc.

People who go to Colorado Springs, Colo., will find other things besides health, if they look around, for there are four stone quarries doing business in that locality. One is owned by Paul Goerke & Son, Manitou, which has been supplying stone for local building for a quarter of a century. In Ute Pass, just above Manitou, there is another quarry which is owned by Thos. Ord, a contractor of Colorado Springs, and from which is secured the green-hued sandstone. Greenlee & Sons, Denver, own a quarry in the canyon, known as Red Rock Canyon, running Southwest from the main drive to Manitou. The product of this quarry is red sandstone. Another quarry in that locality is that of Anthony Bott, one of the oldest citizens of Colorado City, who has a quarry from which excellent building stone is taken.

The Greenstone of Washington.

The United States Marble Co., of Spokane, Wash., seems to be working up quite a lot of enthusiasm on the subject of the greenstone produced by them. Mr. C. E. Mitchell, general manager of the company, has been in New York, where he expects to establish a permanent office, and seems to have met with marked success, judging from the following extracts from a letter from him published in a Spokane paper:

"Owing to the rules of the labor unions, which forbid the use of marble that is worked and finished outside the city, all shipments to this market from our quarries will be in rough mill blocks. Our mill, therefore, will be operated on western business solely.

"I have contracted with a Philadelphia house to take our entire output of vases, pedestals and art wares and we shall have to arrange for greatly enlarging that branch of the business at once.

"The manager of a company having a $5,000,000.00 government contract in the Carolinas recently visited the exposition at Charleston and wrote as follows to a friend in New York about the display of the marbles from Spokane:

" 'Of all the exhibits none attracted my attention more nor interested me so much as the display of the United States Marble Co., of Spokane. I was attracted to the display first by the soft richness of the markings of the green marble, and then more particularly by the novel treatment of it by this company in shaping it into anything from the thinnest drinking goblet to the most substantial mantel-piece or monument. I know of no other marble that has inherent strength enough to stand its reduction into such delicate shapes of whose texture would admit of such fine detail.

" 'The United States Marble Co. are certainly pioneers in their utilization of this class of marble, and the wide swath they are cutting in this varied application of it indicates no misgivings as to market.

" 'The fact that these people in a rough country, twelve miles from railway, have not only pushed their operations to the extent shown in their photos and in their elegant exhibit at the Charleston Exposition, but are hustling into the most critical markets of the East, thousands of miles from their base, shows them to have not only the nerve to get down to the best they have got, but to be confident they have got it and can produce it.'

" 'These letters,' Mr. Mitchell continues, 'are but samples of the enthusiasm with which this product of the Evergreen State is received down here. With the greatly increased capital soon to be at our command the company will increase its force to not less than 200 men, and will put four additional quarries under development. It is the estimate of men prominent in the stone trade here that the company within two years can pay an annual dividend of 10 per cent. and lay aside a surplus of equal amount. If this market takes one-half what these dealers estimate the profits will be fully up to that estimate.'

"Mr. Mitchell is expected to return to Spokane about the end of April. He will establish a permanent New York office for the company, and it is the intention to have a yard in the vicinity of New York, where as much as twenty-five cars of marble can be carried, with a sawmill on the premises for reducing the blocks to slabs."

Stone.

Tritt & Laird, marble cutters of Mechanicsburg, Pa., are building a new shop.

The Young & Farrell Diamond Stone Sawing Co., of Chicago, Ill., has dissolved.

The Brandon Italian Marble Co., Rutland, Vt., is building an addition to its mill.

The Archie Bros., Watertown, Wis., have engaged Mr. Joseph Wenker as traveling salesman.

A cutting plant has been started by McDonnell & Sons, of Quincy, Mass., one of the largest American granite firms.

The McLeod Stone Co., Minneapolis, Minn., are preparing to build a stone crushing plant. The cost will be $10,000.00.

The quarries of the Warsaw Stone Co., Coshocton, Ohio, have been opened and it is likely the force will be doubled soon.

Merkle & Sons, stone and marble workers of Peoria, Ill., have added compressed-air outfit and pneumatic tools to their shop.

Thos. F. Jackson, Waterbury, Conn., has been increasing his stone work equipments by adding a new planer for granite work.

The General Crushed Stone Co., Buffalo, N. Y., has begun operating its plant at full capacity and 200 men have been set to work.

The Wabash Stone Co., Brilliant, Ohio, has commenced work and has also begun grading for a new switch at the quarry near Adena.

The plant of St. Johnsbury Granite Co., St. Albans, Vt., has been taken possession of by Mr. J. E. Walker, a well-known granite manufacturer.

It is reported that the Lehigh Valley stone crushing plant at North Leroy, N. Y., will soon be started up with a larger force than it had last year.

The C. D. Osgood property at Estherville, Iowa, has been purchased by Godden & Ballard, of Emmetsburg, and will start a branch granite and marble works.

The Biesanz Stone Co., Winona, Minn., is branching out and now handles besides stone all kinds of brick, tile, cement, stucco and other building materials.

The Tippecanoe Stone Co., of North Judson, Ind., has been incorporated with $1.000.00 capital stock. Jacob Keller, Charles C. Simons and Clara L. Keller are the directors.

The Bortoli Co., of Atlanta, Ga., makes a specialty of marble mosaic, and is doing a large business. They have executed many handsome jobs in Atlanta and at other points.

The Tidewater Stone Co., of New York City, has been incorporated with a capital stock of $500,000.00. Directors: Herman Dowd, W. J. Roberts and T. D. Jordan, of New York City.

Amasa S. Heal and Lewellyn Wood have bought the interest in the granite business of Charles R. Harrison, Belfast, Me., and will continue the business under the firm name of Heal & Wood.

The Waterloo Stone Co., Waterloo, Iowa, is to have a force of 35 men in two of their quarries soon. The stone quarries are rapidly being opened up to supply the demand for stone.

The Rutland-Florence Marble Co., Rutland, Vt., is building a new mill that will be put in operation early in May. This company will employ thirty gangs, to be increased as work progresses.

The American Black Marble Co., Fort Wayne, Ind., has filed articles of incorporation. Capital stock, $300,000.00. Incorporators are: C. H. Lawton, of Wabash; L. A. Burleigh, of Augusta, Me.; and O. P. Eversole, of this city. It is said this company owns 95 per cent. of the black marble east of the Rocky Mountains.

The New Myers Stone Quarry, Carthage, Mo., is said to be opening up the finest kind of stone Southwest of the town.

It is reported that Mr. Jacob Cummings, Lawrence, Ohio, has moved to Rea's Run, and will work the stone quarry above Newport.

The Leesville Stone Co., Leesville, Ohio, has resumed business after a delay of several months caused by the destruction of their plant by fire.

Mr. Chas. E. Ryle has bought the interest of his partner, John H. Crimmins, in the Columbian Granite Co., Montpelier, Vt. Mr. Crimmins was forced to give up his business on account of poor health.

The Abercrombie Stone Co., St. Joseph, Mo., is said to be doing a good business with James Abercrombie as president, William Hamilton, vice president, and R. M. Abercrombie, secretary and manager.

The Cleveland Litholite Co., Cleveland, Ohio, has been incorporated with a capital stock of $2,500.00. Incorporated by P. P. Evans, C. F. Lake, Jr., Frank C. Osborne, William J. Watson, S. C. Middough, Bernard L. Grier.

The White Crystal Marble Co. was recently organized at Syracuse, N. Y., to operate a quarry at that place. Capital stock, $75,000.00. The company consists of Chas. A. Lux, of Clyde; Edward Morrison and D. C. Whitnet.

The Monumental and Cut Stone Co., of Fort Smith, Ark., has been incorporated. Capital stock, $5,000.00, with officers as follows: J. A. Hoffman, vice president; Claude Hoffman, secretary; Leonard S. O'Neal, treasurer.

A new company has recently been incorporated under the laws of the State of Missouri called the Carroll County Sand Stone Co., at St. Joseph, Mo., for the purpose of operating the White Rock quarries on an extensive scale.

The American Stone Co., Trenton, N. J., has been incorporated with a capital stock of $5,000,000.00. Incorporators: Philip B. Parker, White Plaint, N. Y.; James B. Gillie, New York; John J. Tracy, Jersey City; George W. McKenzie and John F. Gough, Brooklyn.

A new Cleveland, Ohio, concern has been organized called the Coral Marble Co., with a capital stock of $250,000.00. B. B. Avery, president; E. C. Kelly, vice president and treasurer, and E. C. Woolgar, secretary. The company has been formed to manufacture a substitute for marble.

The National Marble Co., of Steubensville, Ohio, has undergone some changes in its personnel. Mr. Harry M. Low has purchased the building and considerable of the stock. At a meeting of the stockholders W. B. Barr was elected president, J. H. Leighton, vice president, and H. M. Low, secretary-treasurer.

A new granite business is to be carried on under the name of Bond & Whitcomb Granite Co., Barre, Vt. The officers of the company are: President, F. N. Whitcomb; secretary-treasurer, W. H. Whitcomb; general manager, C. A. Bond. They have purchased the Hamilton Webster estate on Millstone Hill.

The Great Western Marble Works Co., a Maine incorporation qualified for business in Ohio, has a capital stock of $20,000.00. This company will quarry marble, slate, etc., with principal offices at Cincinnati. The officers are as follows: President and treasurer, Philip McDonough; secretary, Whitington Underhill.

History and Prophecy.

The Beginning of the Stone Industry.

Do you know that the stone industry as a commercial enterprise in this country has hardly passed the century mark in age? The historians say that the starting point in granite quarrying in a commercial way was in 1825, when a quarry was opened at Quincy, Mass., to get out granite for the Bunker Hill monument. About the earliest records we can find of the quarry industry is a statement that there were sandstone quarries at Middletown, Conn., back as far as 1665. These were free "diggins," however, where any and all who wanted stone could go and get it out, and that without paying a cent of royalty to any one. Active work in a commercial way did not begin at the quarries there till between 1810 and 1820.

Marble quarrying began at New Milford, Conn., about the year 1800, but the work there was practically smothered later by the competition from Rutland, Vt., operations being discontinued about 1859. Gneiss, for curbing, was quarried to some extent at Haddam Neck, Conn., as early as 1792, but the work does not seem to have been carried on in a very extensive manner. Slate quarry operations began in Pennsylvania in 1812, and the manufacture of school slates seems to have begun at Fair Haven, Vt., in 1845.

Can You Read Between the Lines?

This bit of history may not signify much to the average reader, and may be regarded as just a bit of interesting data, but when we add that through all this time the value of stone in the ground has been generally extremely low, so low in some instances as to be practically nothing, and, read between the lines of history, there is a chance to find something. The conclusion, a thinking man will come to after digesting the subject thoroughly, will be that there will certainly come a time when rock ledges and land bearing nothing much but stone will have a commercial value that will make the men of that day wonder how and why it was ever so cheap as the records show.

Story of a Granite Quarry.

The farmers around Granite Bend, Mo., tell a story in connection with the granite quarries of that place, that whether true or not, at least illustrates a point. It seems that the land along the bluffs at that location were considered so worthless that no one in the community would accept a title and pay taxes on it. By some means a hustling city real estate man came into possession of the title to some of this territory, and he made some pretty maps, showing the springs and various other essentials that go to make up the ideal location for a farm. This done, he sought purchasers for the farms, and according to the story, he found one, at least, who paid his money and had certain parts of sections transferred to him. This deluded city man with the farm fever went down to look up his possessions, and on arriving in the community sought help from a neighboring farmer in locating his land. The farmer took his land numbers, and guided thereby, led him to the top of very bluffs that were responsible for Granite Bend. The city man was so disgusted after looking over his holdings that he offered to make a deed transferring the whole business to the farmer if the farmer would refund to him the expense of the trip down there—and the farmer wouldn't do it. It is said that the city man did manage later to transfer it to somebody for a nominal sum, and finally people who wanted granite got hold of it, and the ledge of rock became a thing of value.

The Forests as an Example.

It is, of course, absurd to advance the idea that every good ledge of rock in the country will turn out this way, but there is no room for doubt but what he future will see a marked advance in the value of such property, not only in special localities, but generally. We can consistently take the timber holdings of the country for an example in this line, for though there is a marked difference between the two, it is about as certain that rock land will advance in value, as it is well known that stumpage has advanced already from practically nothing in value to a point where it makes lumber such an expensive article that builders are turning more to rock and clay products. Nor is the situation likely to improve, for timber is getting too scarce to do aught else but continue to increase in value. On the other hand, the increasing use of rock and clay products will certainly in time create a call for land that produces it that will make such holdings of respectable value. Just store this point away in your mind and watch the course of events.

What Is the Oldest Rock?

Occasionally there arises in engineering circles some question about the oldest rock—the first formation of the kind when the surface of the earth began to harden. A few years ago Prof. N. H. Winchell, State Geologist of Minnesota, presented a paper at a meeting of the American Association for the Advancement of Science, describing the green stones of that State, and advanced arguments to show that they are the oldest rock—the bottom of the geological series. Prior to this, there had been a general understanding that the Laurentian rocks of Canada were the oldest. Does Prof. Winchell's findings hold good yet, or has there been some fresh discoveries made?

Tell 'em you saw it in ROCK PRODUCTS.

Clay.

Clay-Working in France and Greece.

The advance sheets of Consular Reports for April give a description of the clay-working industries of France and Greece, from which it is evident that brick making has not made progress in the old countries in a mechanical way that it has here; in fact, is nowhere near it. This is probably due in a large measure to the cheapness and skill of the hand-workers in clay; it can hardly be due to a lack of demand, for the older countries use more clay and stone, comparatively, in building than we do. This is especially true of roofiing tiles, it being noted in the reports from Greece that in the cities and large villages there is scarcely any other kind of a roof in existence. Tiles are manufactured in or near every city or town of any size in Greece, and the only machinery used is a primitive and simple "mixer," turned by a horse or mule. It is said that the average tile manufacturing outfit of the smaller towns could be loaded on the backs of two or three donkeys and moved from village to village, all of which makes one speculate on the prospects of a market for modern American clay-working machinery.

The Pottery of Athens.

Pottery manufacturing is quite an industry in Athens, there being a dozen or more plants, the most noted of which are in the "Kerameikos" (clay workers') quarter in the western portion of the city and on the "Sacred Way" of the ancients. They make many kinds of crockery and some very good imitaions of ancient vases, etc. In the Cyclades, and in all of the islands of the Aegean Sea, there are pottery manufactories, and the pottery of each island has certain characteristics peculiar to itself, owing to the difference in the clay or the method used in its manufacture.

French Porcelain.

Of porcelain manufacture in France, Consul Haynes has the following to say:

"Porcelain was first manufactured in France at Vincennes. In 1730, the proprietors of the Vincennes works moved to Sevres, where they established a manufactory which Louis XV bought in 1739, and it has since remained the property of the State. The output of this establishment has long been celebrated in Europe for its beauty of material, purity of design, elegance of form, and richness of ornamentation.

"To-day there are three principal centers of porcelain manufacture: Limoges (Haute-Vienne), Berry and Paris and environs. The first, Limoges, is probably the greatest of these, and has been especially productive for the last few years. Last year, it had 380 more furnaces than in 1900, and each month of the year (1901) showed a superior production to corresponding months of any preceding year. The total number of furnaces in Limoges in 1901 was 3,300, as compared with 1,956 in 1889.

"SEVRES PORCELAIN.—Sevres is a soft, vitreous porcelain. In 1884, the manufacturers of Sevres, after long and tedious research to find a porcelain which would take decoration better than hard porcelain, and be capable of receiving the blue turquoise of copper, produced a new kind of pottery to which has been given the name of Sevres. The glass composition of this, after being heated and pulverized in water, gives the following: Silica, 77; lime, 10.3; potash, 5; soda, 7.7. It then enters into the composition of the following clay: Sand of Fontainbleau, 49.02; glass, 27.45; chalk, 16.66; Dreux clay, 6.86. After baking the composition becomes: Silica, 80.31; alumina, 2.62; potash, 13,27; lime, 1.5; soda, 2.3.

"HARD PORCELAIN.—The fabrication of hard porcelain is centered in France, with rare exceptions, in the Departments of Haute-Vienne and Cher. In Germany, the industry is more scattered, but the principal centers of production in that Empire are in Saxony, Bavaria and Bohemia. The industry exists also in Belgium, Denmark, Russia, Italy, China, Japan and the United States. Hard porcelain is not manufactured in England.

"It is said in France that to manufacture 1 kilogram (2,2046 pounds) of porcelain, 8 kilograms (17.6 pounds) of raw material must be used.

"The chief coloring matters employed in France in the decoration of hard porcelain are:

"Blue: Oxide of cobalt, the tint being varied with a mixture of chrome or oxide of uranium.

"Gray: Oxide of iridium and platinum, the tint being usually rendered more agreeable by oxide of cobalt.

"Yellow: Oxide of uranium.

"Brown: A mixture, in varying proportions, of chromate of iron and oxide of manganese.

"Rose: A mixture of anhydrous alumina and chromate of potassa.

"FIRE PORCELAIN.—In France, this is the name given to all porcelains in which liquids are heated. This fire porcelain is used in laboratories and for domestic use, such as evaporators, retorts, crucibles, saucepans, etc.

"The composiion of the clay differs but little from that of other hard porcelains; it is, however, less siliceous and more aluminous. The following is the composition of the fire porcelain of Bayeau, which has a high reputation in France: Silica, 61.61; alumina, 30.01; oxide of iron, 1.56; lime, 3.56; potash, 3.26.

French Faience.

"The plasters or bodies of fine French faience are composed of pure white clay, of kaolin, sand and flint. Common faience has for its elements marly sands and common clays, marly clays, loamy clays, and calcareous marls. The substances which form the base of the glaze are the same for fine and common faience, viz., silex, feldspar, the alkalies, minium, or white lead. In the better sort of faience, boracic acid is used to a considerable extent, and, in the more common sorts, oxide of tin, which gives a certain enamel-like opacity to the glazes, which hides the dark or red colors of the inferior clays.

"The most important centers of faience manufacture are the Departments of Seine-Inferieure, Nievre, Meurthe-et-Moselle, and Loire-Inferieure. In all there are only 400 establishments, which use a force of over 500 horse power and employ 6,000 persons, of whom 1,500 are women and children. The annual output is valued at about $3,000,000.00."

WITH THE CLAY WORKERS.

The Seaton Tile and Brick Works, Seaton, Ia., well begin work soon.

Joseph H. White & Son, Easton, Md., have started up their brick yard with full force.

The Cherryvale (Kan.) Pressed Brick Co. has been incorporated, with a capital stock of $30,000.00.

H. L. Luift, Riverside, Iowa, has begun operating his brick and tile plant. His output is 13,000 brick daily.

Contractor Ferdinand Porath, of Detroit, Mich., has bought clay property, and it is said that he will erect a plant and manufacture brick.

The Palmer Pressed Brick Works, Palmer, Tex., has been incorporated. Capital stock, $20,000.00. Incorporators, R. Smith, J. M. Blocker and C. F. Lowe.

It is reported that the plant of the Sag Harbor Brick Co., Sag Harbor, L. I., will be sold to a brickmaker of Providence, R. I., who will resume operations at once. This plant has been idle for about a year.

The Reese-Hammond Fire Brick Co., Clairsville, Pa., has contracted for the erection of a large firebrick plant. The new buildings will be constructed of brick and stone. It is thought they will be completed by June 1.

The Saginaw Sandstone Brick Co., Saginaw, Mich., has been organized. Capital stock, $25,000.00. Officers as follows: J. L. Jackson, president; E. C. Ewen, vice president; E. D. Church, treasurer, and E. D. Norris, secretary.

The Entress Brick Co., 15 Exchange Place, Jersey City, N. J., has been incorporated with a capital stock of $15,000.00, to manufacture brick and stone. Incorporators are: A. M. Entress, Joseph Entress and Francis Entress, all of Jersey City, New Jersey.

Tell 'em you saw it in ROCK PRODUCTS.

The American Brick Co. has begun operations at East Berlin, Conn.

It is reported that H. B. Camp & Bro. will erect a $200,000.00 sewer pipe factory at Akron, Ohio.

Mr. Montgomery Frick is preparing to operate the Spring City (Pa.) brick yard this season.

The Queen City brick yards Carthage, Mo., has opened up again with the usual force of twenty-five men.

The B. K. Enameled Brick Co., of Cleveland, Ohio, has been incorporated with a capital stock of $60,000.00.

Robert Glass will operate the old Demers brick yard, Troy, N. Y. This yard has been idle for the past two seasons.

The Corneer Brothers & Croft Brick Co. has been incorporated at Omaha, Neb., with a capital stock of $10,000.00.

The Davenport Tile and Brick Co., Buffalo, Iowa, has begun operations and expects to turn out carloads of bricks this season.

The Akron (Ohio) Roofing Tile Co. has been incorporated by Chas. E. Howland and others with a capital stock of $105,000.00.

Geo. Cook and M. J. Stone, Ithaca, N. Y., have leased the Campbell Brick Co. plant, and will resume control of the works at once.

The American Sewer Pipe Co. has absorbed the plant of the Delaware Clay Manufacturing Co., and will put in a new mill at Delaware.

The Maryland Art Brick and Tile Co., of Belair, Md., has been incorporated with a capital stock of $300,000.00, to manufacture bricks, etc.

Sorenson & Smith, Council Bluffs, Iowa, are making some extensive improvements at their brick yards and expect to turn out 25,000 a day.

It is reported that the North Alton brick plant, Morris, Ill., has resumed work and increased its capacity to 100,000 bricks a day.

The Neff brick yards have been bought by Hanerwas Bros., Sheffield, Tenn., who are enlarging them and putting in improved machinery.

The Anthony Ittner Brick Co., of Illinois, has been incorporated with a capital stock of $100,000.00. Their offices will be at St. Louis, Mo.

The Houck Brick Co., Springfield, Ohio, has been incorporated with $15,000.00 capital by S. M. Edwin and Ina M. Houck, Geo. M. and L. O. Leffel.

The Columbia Brick Co., Columbia, Pa., have begun manufacturing brick, and predict a busy season. They have their books well filled with orders.

Messrs. Alexander Green and William J. Brides, of Philadelphia, Pa., have bought the Bunting Mill at Darby, Pa., and will convert the grist mill into a pottery.

A. C. Ochs, Springfield, Minn., has begun making bricks again and has a large number of orders waiting to be filled. He expects to be very busy this season.

The Belleville Brick Co., Belleville, Ill., has been incorporated wih a capital stock of $60,000.00. Incorporators are: John A. Day, Lena Day and Edward Abend.

It is reported that the Jennings (La.) Brick Co. has ordered machinery to manufacture pressed brick, and it is said it will be the only pressed brick plant in that section.

The Potomac Terra Cotta Co., Washington, D. C., has sold its plants and real estate on the Metropolitan Branch of the B. & O. R. R. to Mr. Henry E. Lineweaver, Pittsburg, Pa.

The Palmer Pressed Brick Works has been incorporated at Palmer, Texas, with a capital stock of $20,000.00. The incorporators are: R. Smith, J. M. Blocker and C. F. Love.

S. F. Wiles, of San Antonio, Texas, recently made a visit to Brenham to inspect a location for an extensive brick yard. This yard will have a capacity of 65,000 brick a day.

News comes from Kansas City, Mo., that the Kansas City Hydraulic Pressed Brick Co. had its storehouse destroyed by fire. Loss, $100,000.00, partly covered by insurance.

The Waterbury (Vt.) Brick Co. has bought out the brick yard of G. E. Moody, and will begin operating it at once. F. C. and E. E. Evans are the principal parties interested.

Messrs. John and Frank Judy and D. M. Cook expect to build a fine brick yard near the Vandalia road at Mackinaw, Ill., where they have bought five acres of land.

William F. Stimmel, of Kurtztown, has purchased the brick plant located at Adamsdale, Pa., and will ship it to Kutztown. He expects to have it in operation in a short time.

A. A. Grey has purchased the Perkiomen brick plant at Perkiomen Junction, Pa. He will organize a stock company and increase the capacity of the plant from 25,000 to 200,000 a day.

John B. Prullage has bought the Knox County brick yard, Vincennes, Ind. Mr. Prullage resigned his position as superintendent at the Central Foundry to take control of the brick yard.

Kieffer Bros., Burlington, Iowa, have completed their brick and tile factory and expect to be at work soon. They will have the latest improved machinery to aid them in making first-class bricks.

The Red Valley Brick Asociation, Grand Forks, S. D., recently held its annual meeting and elected the following officers: President, John Dinnie; treasurer, W. P. Alsip; secretary, Lewis Campbell.

The brick industry which was started last year by Amadon & Smith at Lancaster, N. H., has been purchased by S. A. Amadon and I. W. Quinby, and they are booked to begin this year's operations May 1.

The brick plant of H. G. Manon has been purchased by the Neff Bros., who, with W. O. Weaver, constitute the firm J. G. Neff & Co. They expect to enlarge the plant to a capacity of 40,000 brick a day.

The Chicago-Lenzburg Coal Co., Lenzburg, Ill., has been incorporated to mine coal and manufacture brick. Capital stock, $100,000.00. Incorporators are: D. D. Thomas, William Casperson and F. M. Vernon.

It is reported that a company headed by Charles E. Howland is being organized to continue the business of the Ewart Tile Works, Akron, Ohio. Capital stock, $100,000.00. It is expected the plant will be increased.

Bodine & Davis have purchased the Bellows Falls Brick Co. property, Burlington, Vt., and expect to begin operations at once. Mr. Goddard, who has been interested from the first, will be general manager.

Ira Ray, Morehead, Iowa, has leased the brick yard formerly operated by Geo. Morehead for this season's work in brickmaking. It is also said that he has bought property on which he will likely erect a brick plant next year.

Articles of association have been filed by The Burns & O'Shea Brick Co., Detroit, Mich., with $30,000.00 capital. The stockholders are James D. Burns, Timothy J. Burns, Simon O'Shea, Julia B. O'Shea and Margaret Burns.

The Crown Pottery Co., Peoria, Ill., which now owns the Peoria pottery, expect to have their new clay shed completed in a few days. It is said the entire pottery will be opened soon and will give employment to about 200 men.

The Trimble Brick Co., Hogansville, Md., has been incorporated with a capital stock of $25,000.00. It will manufacture brick, tile, hollow ware, terra cotta, etc. The incorporators are: R. W. Trimble, P. H. Darden and Edwin Trippe.

The promoters of a new enterprise about to be established at Morehead, Minn., for the manufacture of brick are W. B. Auxer and L. A. Martell. This plant will employ at the start eighteen to twenty men and has a capacity of 30,000 a day.

The Richmond Brick Co. has been incorporated with $100,000.00 capital to manufacture building material. Their place of business is San Francisco, Cal. Directors are: Jacob Stern, Julian E Cary, Sol Wangenheim, A. Hochstein, E. A. Vining.

The Carlisle Brick Co. has been incorporated at Carlisle, Pa., to take over the business of the Thompson brick yard and the Jno. Spotts brick yard. Mr. Spotts is the head of the new enterprise, and it is said that Mr. Thompson will quit the brick business and go to Cuba.

A company to deal in all kinds of brick, mortar, fireproofing and roofing materials has been organized at Columbus, Ohio, called the Columbus Contractors' Supply Co. Capital stock, $10,000.00. D. W. McGrath, C. E. Williams, S. J. Isabel, B. S. Stevenson and M. P. Streett are the incorporators.

A brick plant having a capacity of 40,000 brick a day, representing an investment of $10,000.00, to employ about twenty men, is to be established by J. V. Wood, 612 South Emporia Ave., Wichita, Kan. will manufacture building brick at first.

The Colorado Brick and Artificial Stone Co., Colorado Springs, Colo., has been incorporated with a capital stock of $150,000.00. The directors are: E. E. Wade, Franklin E. Brooks, R. J. Verner, T. E. Johnson, Ben Brewer and T. J. Jones.

Reports come from Clearfield, Pa., that ground has been broken for the new tile works on G. L. Reed's farm in the southern end of the town. Messrs. Reed, Porter and Wrigley compose the company. This plant will give employment to 100 men. The work will be pushed as rapidly as possible.

The South Milwaukee Brick Co., Milwaukee, Wis., recently incorporated, will soon commence operations at the new clay beds one mile south of Milwaukee. The incorporators and officers of the company are: William Hertel, B. Hertel, Chas. Westphal and Carl Westphal. Capital stock, $10,000.00.

The Texas Pressed Brick Co., of Mexia, has been incorporated with a capital stock of $20,000.00. They purpose to manufacture and sell brick, lime, cement and tiling. The incorporators are: J. M. Long, Julius Nussbaum, C. J. Kauhl, M. E. Roberts and J. B. Long, of Mexia. Principal offices at Wortham, Texas.

The Fiske Brick Co. is building a new plant at Dover Point, N. H., in which it is said they are installing the largest brick machine manufactured, weighing 10 tons, with a capacity to turn out 20,000,000 face and sewer brick annually. A feature of the plant will be much of the machinery is to be driven by electric motors.

A company having a $1,000,000.00 capital stock has been organized at Plainfield, N. J., with the following officers: President, T. O. Doane; vice president, Thomas Quinn; secretary, F. H. Smith; treasurer, Charles Goodfellow; Robert M. Clark is the counsel. They will manufacture a fire-brick from a substance known as pulverite.

The New England Steam Brick Co., Providence, R. I., has made extensive improvements at its plant, putting in steam pipes throughout the entire plant to economize in fuel; a new machine to manufacture fire brick has been installed and three hundred and fifty men employed. They expect to manufacture 60,000,000 bricks a year.

The Vitrified Brick and Tile Co., Boise City, Ida., has been organized and has elected the following officers: W. N. Northrop, president; J. W. Eagleson, vice president; W. A. Davenport, secretary; Wm. Simons, treasurer; F. E. Glazier, superintendent. The capacity of the concern will be 35,000 common brick daily or 25,000 vitrified brick. Capital stock, $75,000.00.

It is said that an employe of the Pittsburg Plate Glass Co., of Kokomo, Ind., has discovered that the waste sand which has accumulated about the plant so that it covers a twenty-acre tract 8 ft. deep will make the finest vitrified and paving brick that can be manufactured, as well as fire brick of good quality. It is also said that the company contemplates erecting a factory near the dumping ground to manufacture these articles.

The Sergeant Bluffs Brick Co. is the name of a new concern just incorporated to take over the old Sioux City, Iowa, brick yards, which have been closed for several years. The company is composed of C. W. Ritz, H. O. Ried and R. Huzby. The new company will repair the yards and make improvements and expects to get them in shape to turn out 60,000 brick a day. Building, side walk and paving bricks will be manufactured.

Reports of the recent annual meeting of the Black Hills Porcelain, Clay and Marble Co., at Detroit, Mich., say that the company spent $100,000.00 during the past year in development work. This company has a capital stock of $3,000,000.00. B. R. Noble, of Yale, Mich., is president, F. H. Wellington, 715 Chamber of Commerce Building, Detroit, secretary-treasurer. The first vice president is L. P. Woodbury, of Chicago; second vice president, F. W. Bower, of Deadwood, S. D.; assistant secretary, C. E. Nason. Directors, F. W. Bower, of Deadwood; R. L. Boyer, of Chicago; H. P. Cook, of Cincinnati; E. J. Miller, of Columbus; L. Hicklen, of Colorado; B. R. Noble, of Yale; W. Schlichter, of Yale; Joseph Seep, of Oil City, Pa.; F. H. Wellington, of Detroit; L. P. Woodbury and John A. Tolman, of Chicago.

Tell 'em you saw it in ROCK PRODUCTS.

Sand.

Tom Miller & Sons have opened a sand pit at Flyville, S. D.

White Sand Works, Clayton, Iowa, has made Wm. Tonnar manager. They are now kept busy filling orders.

The business of George Rebuer & Son, of Davenport, has been turned over to Tropp, Darling & Co., Rock Island, Ill.

The United States Plate Glass Co., St. Louis, Mo., have opened a sand bank in Valley Park, Mo., and will shortly put in a glass plant there.

The Webster Foundry Sand Co., Masonville, N. J., have increased the wages of their men $1.40 a day, and are very busy loading molding sand.

The Harriman Sand Co., Harriman, Tenn., has been incorporated with a capital stock of $10,000.00, by Harry E. Durrell, Albert C. Jackson, Geo. C. Goodrich and others.

Ozias Beasley, of Joplin, Mo., is finding a new use for the gravel accumulation at the crushing plants and mines in that region, commonly called tailings. He is finding a market for it in the South where it is used as macadam on streets and roads.

The Coxey Silica Sand Co. has been incorporated with a capital stock of $6,000.00. The moving spirit in this company is J. S. Coxey, who became famous as General of the Commonwealth Army in 1895. He has applied for the admission of his company to the State of Ohio, but the exact location is not indicated in the report.

ARTIFICIAL STONE.

It is reported that Piqua, Ohio, is to have an establishment for the manufacture of artificial building stone among its fine quarries.
and roads.

Among the new industries in the building line at St. Louis is a concern, known as the Perannite Co., which has been organized to construct buildings out of a material called "Perannite," and it is said they have a contract to erect a church edifice for the Taylor Avenue Baptist Church of this material.

The Saginaw (Mich.) Sandstone Brick Co. has been organized with a capital stock of $25,000.00, to manufacture sandstone and brick. The stockholders interested in this enterprise are as follows: J. L. Jackson, E. C. Ewen, E. D. Church, F. D. Ewen, J. C. Reinke, C. E. Powell, H. Penoyer, H. D. Norris, C. C. Remer and H. C. Remer, of Saginaw, and H. T. J. Feuhrman, of Detroit.

J. Schumacher, 824 Chouteau Avenue, St. Louis, Mo., has a patent on the process of manufacturing hollow cement blocks. Mr. Schumacher's blocks are made with a wire screen core in the body of the concrete to give it strength, and in this respect seems to bear some relation to what is known as the Monier construction. It might be pointed out, in this connection, too, that the St. Louis Expanded Metal Fireproofing Co. are working along somewhat similar lines in the way of metal and concrete in construction. Of course, all these differ in a way from each other, also from the Monier construction; still, when you consider the idea embodied in the Monier process, it would appear to be the base from which the others have originated and improved. The Monier construction consists of two materials—wrought iron or steel and motar, consisting of cement and sand. The iron or steel may be either in the form of rods or wires, which are designated as carrying rods or distributing rods. These two systems of rods are applied like netting with meshes, varying according to the requirements of the individual cases. This form of construction with its variations promises to become quite prominent in the future, and deserves encouraging by the cement people, because it invariably calls for the use of cement. It goes without saying, therefore, that new discoveries along this line will be watched with interest.

Trade Prospects.

Galesburg, Ill., is building a new city hall.

Hoboken, N. J., will do some asphalt paving.

Providence, R. I., will construct some sewers.

Street improvements to the cost of $10,000.00 will be made at Jellico, Tenn.

A new county jail is to be built for Contra Costa County, California, at Martinez.

Macon, Mo., will let contracts May 5 for paving Union Street with sand and brick.

New Haven, Conn., will construct some new sewers. Contract will be let May 6.

Youngstown, Ohio, will let contracts May 18 and pave Custer Avenue and Market Street.

It is reported that a Masonic temple will be erected at East Orange, N. J., at an early date.

Colorado Springs, Colo., will do some paving with disintegrated granite by way of experiment.

Nashville, Tenn., is preparing to build four sewers. Contracts have probably been let by this time.

Plans are being made for a municipal building for West Homestead, Pa., to cost $10,000.00, by D. S. Platt.

A bill has been passed in Senate appropriating $60,000.00 to enlarge the public building at Kalamazoo, Mich.

The Senate has passed a bill appropriating $100,000.00 for the erection of a federal building at Findlay, Ohio.

The water mains of McKinley, Texas, will be extended, for which the city has decided to issue $12,000.00 of bonds.

Wilkes Barre, Pa., will let contracts May 8 for grading, curbing and paving with brick or blocks on concrete foundation.

An appropriation of $1,595,600.00 has been asked for for the improvement of Governor's Island, N. Y. The island will be enlarged.

Quackenbush & Co., Paterson, N. J., are to have a new department store. It is said it will be the largest business house in the State.

A bill was introduced in the Senate appropriating $50,000.00 for the erection of a Revolutionary War monument at Point Pleasant, W. Va.

Robert C. Gotwald has made plans for the $75,000.00 county building to be built at Springfield, Ohio. It is to be a fire-proof structure.

The Senate Committee on Public Buildings and Grounds has authorized a $1,000,000.00 public building to be erected at Providence, R. I.

A bill has been introduced in Senate authorizing a monument at Arlington to the late Joseph Anthony Mower, which is to cost $1,000.00.

Canterville, Miss., contemplates the construction of a system of water works, for which they desire plans and specifications to be submitted May 6.

Seattle, Wash., seems to be making extensive street improvements this spring. Asphalt paving is the most important work on hand at present.

Geo. E. Pond, chief quartermaster, Department of Dakota, St. Paul, Minn., will receive bids until May 15, for the construction of barracks at Fort Meade.

A $70,000.00 fire-proof court house is to be built in Sioux County, Iowa, according to plans by Wilfred W. Beach, and bids will be received until May 13.

A new High School will be erected at Chelsea, Mass., where the Primary School stands on Broadway; $130,000.00 has been appropriated to build this school.

It is said that about 20,000 ft. of pipe will be needed for the water works at Walhalla, S. C., for which the Blue Ridge Water Co. has had surveys made.

Gloversville, N. Y., has asked for an appropriation of $75,000.00 for public buildings.

An appropriation of $159,356.00 has been asked for for the construction of buildings at Fort Meyer, Va.

The Canoe Brook Committee Club, Summitt, N. Y., is building a new club house to be completed July 1. It will cost $12,500.00.

A soldiers' and sailors' monument to cost $10,000.00, to be placed on North Broad Street opposite the Westminster Presbyterian church, will be built this summer at Elizabeth, N. J.

The appropriation of $6,500,000.00 for the new buildings at West Point Military Academy has been reported on favorably by the Committee of Military Affairs.

At a recent meeting of the Houston (Texas) Water Co., it was decided to expend $150,000.00 for extensions and improvements to its system during the coming year.

State Engineer Bond, Albany, N. Y., will soon be open to receive bids for 186 miles of improved road under the Good Roads law of 1898; $1,600,000.00 is to be expended.

A financial broker in the New England Building, W. E. Swentzel, is preparing to build at 1324 and 1326 Grand Avenue, Kansas City, Mo., and will spend $12,000.00 on it.

A $40,000.00 courthouse will be erected at Blackshear, Ga., for Pierce County, in accordance with plans by J. W. Golucke & Co., Atlanta, Ga. Bids will be received until May 15.

Bids for the construction of the United States postoffice, Creston, Iowa, will be received until May 27, by the supervising architect, Treasury Department, Washington, D. C.

A. B. Saunders, Beaumont, Texas, has been awarded the contract for the construction of the water works and sewerage system at Jennings, La. It is said the cost will be $40,000.00.

The Simons Building Trust, Boston, Mass., of which Hon. A. Gaston and Hon. Horatio Land are trustees, are contemplating erecting an eleven-story building to cost nearly $2,000,000.00.

Appropriation bills have been signed providing for a State home for consumptives to cost $50,000.00, and a monument to the New Jersey soldiers who fell at Antietam to cost $10,000.00.

A bill was passed in Senate appropriating $150,000.00 for a monument to the Iowa regiments who fought at Vicksburg, and $35,000.00 to the regiments who fought at Lookout Mountain.

San Antonio, Texas, is to do considerable improving, paving streets, drainage, electric lighting plant, hospital, theater, school house and municipal palace. Six million dollars will be spent.

Bids will be received up to May 28, for the construction of the United States postoffice at Fitchburg, Mass., at Treasury Department, Washington, D. C. Mr. James Knox Taylor is supervising architect.

A new mercantile building is to be erected at 84 and 86 Essex Street, Boston, Mass. This property was recently bought by Frost & Bros., well-known builders. The building will cost about $150,000.00.

Harrisburg, Pa., is planning to do extensive improvements, and has secured the services of James F. Furtes, of New York, as consulting engineer, and has opened an office at 27 South Second Street for his use.

The sky scrapers still continue to grow in New York City, and it is said in corroboration of this that the Geo. A. Fuller Co., which makes a specialty of taking contracts for this work, has contracts on hand which in round numbers run up to $15,000,000.00.

The Senate has appropriated $25,000.00 for a monument to the memory of Abraham Lincoln. The commission to secure plans and designs for the monument are Chairmen of the Library Committee in the two Houses, the Secretary of State, and the Secretary of War.

Sparks & Williams, Mt. Vernon, Ky., are adding a lime kiln which is ready to operate at their quarry for getting out ballast near that point. They have also started a store, and recently opened a new quarry at Mullen Station on the K. C. Road in Kentucky.

Tell 'em you saw it in ROCK PRODUCTS.

THE ASSOCIATION IDEA.

[CONTINUED FROM PAGE 1.]

to the member in that locality, and was he not benefited financially by making the sale?

A year and a half ago a Toledo contractor secured the contract for the erection of a large building in a certain city of this State, and our firm furnished all material from here.

A few months earlier I had visited that city with the view of inducing the principal dealer there to join our association, but was unable to induce the gentleman to join us.

That he was mad, shortly afterward, when our material supplied his market, expresses it mildly.

We furnished a certain brand of Portland cement for that building, and immediately the gentleman put that brand in stock, so to be ready to supply the next job. A large factory was next built; we again furnished the material, but another brand of Portland, and then arrived the time when our friend in that locality came to his senses.

Had he been a member of this association we would certainly not have furnished anything and he would have had the benefit financially himself.

I am satisfied that manufacturers and others who come in contact with us have learned to consider the dealer differently from what they used to do in a good many cases, and what caused this change? It is one of the moral effects caused by this association. I had the satisfaction of attending various meetings of organized bodies of manufacturers during the past year, but I know well enough that I was there as the representative of this association. As the representative of a firm, I doubt that I would have been admitted or had received the consideration and courtesy which was shown me. Another moral effect of this association.

Various violations of commercial courtesy and greedy actions of certain manufacturers' agents have come under our observation.

In one of these cases which is well known to all present here, our committee received a fine reception by a concern which would not have listened to the claims of an individual firm. And why was the committee so well received? Because it was shown that our action was upheld and supported by others in the rear. Can you deny the moral effect of our organization?

I would cite other cases, but this matter being well known, I need not do it.

We obtained the desired adjustments and in all cases a moral was taught. The members of the association experienced a moral benefit and the other fellows a moral lesson.

Would the complaint of a single firm have received such attention, and is a moral effect of this kind not worth while of spending a little time and a little money, if necessary, to advance this association? Personally, the moral benefit which this association creates is of more value to me than the financial benefit. I do not despise the "dollar," but I do not want to be a slave. The moral effect of our association creates good fellowship and friendship between its members, a better understanding between the manufacturer and the dealer, self-reliance and independent feeling of the dealer. Financial benefit has no such effect and is not as far-reaching.

When our brother, Walton, of Youngstown, Ohio, at our last annual meeting, declared that the privilege of meeting men of his own calling and exchanging ideas with them, was worth $25.00 to him every time, he voiced not only his own sentiments, but that of others also, and in this connection I gladly confess that I have not attended a single meeting of this body without having learned something pertaining and important to my business.

To give us an opportunity to become closer attached to each other, it appears to me, that this association should meet oftener than once a year and convene at least twice during the winter and the other time during July.

To promote the friendship and co-operation of well-meaning and honest manufacturers, arrangements should be made that they or their representatives meet with us in the future.

The American Agricultural Chemical Co. has bought the Grafflin Chemical works located in the Canton district Baltimore, Md.

E. M. Deane, secretary of the Michigan Lime Co., said they put in two new kilns at Petoskey, Mich., making nine kilns in all with 650 barrels capacity a day. They report a splendid trade, and their product is sold right near home.

Side Talk.

We are in receipt of a number of booklets and bulletins by G. P. Grimsley, of Topeka, on Kansas mineral industries.

The McKelvey Concrete Machinery Co. secured a building in Chicago, and are getting out a neat little catalogue, illustrating the concrete mixing machine.

The Keystone Driller Co., Beaver, Pa., have gotten out an elegant catalogue which tells about drilling in general, and about the Keystone driller in particular, how to use it.

We are in receipt of a price list from W. J. Druescher, Chicago Opera House Building, Chicago, Ill., which tells about the cement, plaster, lime, brick, etc., he has to sell, and gives prices on same.

William Wirt Clark & Son, Baltimore, Md., are issuing a monthly bulletin under the title of "Headquarters," which is a novelty in this line. It contains both sense and nonsense, and is artistically gotten up.

The Bryant & Osborne Co., 3910 South Broadway, St. Louis, Mo., have an interesting booklet on air bolters and dust collectors manufactured by them which should be intersting to cement manufacturers.

It is said that Prof. Campbell, of Ann Arbor, Mich., has invented a new rotary cement furnace that promises to revolutionize the Portland cement industry. Prof. Campbell is the scientist and teacher who lost his eyesight by an explosion in the laboratory of the university at that place several years ago.

Of geological reports, we are in receipt of the Mineral Resources of the United States for 1901, and the United States Geological Survey, the Annual Report of the State Geology of New Jersey for the year 1900, and the Twenty-fifth Annual Report of the Department of Geology of Indiana, Vol. 13 of St. Louis Geological Survey, Vols. 5 and 7 of the Geological Survey of Michigan.

The swellest thing in the way of a stone machinery catalogue that has come along, is that of D. W. Pratt, 618 N. Third Street, St. Louis, Mo. The first thing you see when you open the catalogue is a picture of the front of Pratt's store, Mr. Pratt and Geo. Allison standing in the door, and before you get through the catalogue you will find illustrated almost every thing used in the rock product industry.

We have received, with compliments of Lathbury & Spackman, the American Engineering Practice and The Construction of Rotary Cement Plants. This book is not only artistically gotten up, but displays modern plants built by the company, and is unique, in that it is published in three languages, English, German and French. The three appear side by side on the same page all the way through the book.

The Charles Warner Co., 80 Main St., New York City, are getting out a series of mailing cards that strictly testify to the ability of their advertising man. Those we have, so far contain the story of "Limoid," which is cut up into sections, and are both novel and interesting. All those who have occasion to buy lime should make it a point to get their name on the mailing list of this company, and get a series of these cards. Commonly the illustrations are of peculiar people, which to some extent suggest brownies, and other times gnomes, but they are neither, for they belong to limies.

The Harrison Supply Co., 32 India Wharf, Boston, Mass., write us that they have been appointed exclusive agents for the Aberdeen Iron Grip Co., of Aberdeen, Scotland, who manufacture the famous Scotch shot. This agency is the result of a trip that Mr. Nathan C. Harrison made abroad the first of the year, and it means that the consumers can get Scotch shot for less than they formerly had to pay, and they can have their orders filled more promptly. The Harrison Supply Co. are pushers, and are after business, and they are getting it on the strength of fair treatment, guaranteed goods and low prices.

Charles T. Wade, of the Omeba Portland Cement Co., Jonesville, Mich., reports active business for the year.

The Feller Blue Stone Quarries, Quarryville, N. Y., have been leased by Patrick Quirk for the coming year.

B. T. Becker, of the Newaygo Portland Cement Co., Newaygo, Mich., states that they have increased their capacity, and will now make 1,200 barrels daily.

Among the pushing stone machinery people, who are bidding for a share of business from the stone and allied industries, is the Gordon Foundry and Machine Co., St. Joseph, Mo. They have a neat catalogue that tells about their stone sawing machinery, etc., and prospective users of such machinery can get a copy of it for the asking.

Mr. John Monaghan, of the Alpena Portland Cement Co., Alpena, Mich., reports that their 1,000-barrel plant, has more orders than it can fill. Their location makes it possible to ship by water or rail, and orders are very plentiful. Their additional machinery is helping them out, but Mr. Monaghan states that he notes a nice increase in the business even after their having made provision for a larger output.

We feel like congratulating the craft, as well as being very much elated ourselves, to present with this issue of ROCK PRODUCTS the ad. of the Sturtevant Mill Co., of Boston, Mass., which you will find on page 3. This company are specialists in crushing and grinding machinery, as you will see, and their maxim that "The years bring experience; experience precedes excellence and excellence begets reputation," ought to appeal to any man. If you are in need of anything in their line, we hope you will consult them before buying.

Vice President Williams, of the Egyptian Portland Cement Co., with headquarters at Detroit, Mich., says they have their new buildings for their cement plant at Fenton completed. They will make something like 1,500 barrels a day, and expect to get started some time in August. They had hoped the machinery would be placed at this time, but owing to the large amount of business on hand, the machinery people were not able to deliver the same. They will also at a later day put up a complete plant at Holly. We will at a later date give some information in regard to the plant at Fenton.

We are in receipt of a copy of the "Merchants' and Seamans' Expeditious Measurer," published by A. L. Nash, 17 State Street, New York City. This neat reference book shows at a glance the solid contents of any stone or package when the length and breadth are given. It can also be used for determining surface measurements as well as cubic measurement. The book is neatly bound, and would be a valuable acquisition to any man in the stone business. Further information in regard to this refernce work our readers may look up Mr. Nash's ad. and write him. He will be glad to answer any and all inquiries.

While in the office of Richard Kind, of the Toledo (Ohio) Builders' Supply Co., he stated they had had a very active spring, and the prospects were that the business for the year would be large. Mr. Kind merits his name, and gives a lot of good information, but his hearty welcome to ROCK PRODUCTS, and the representative of same, added about twenty years to the life of the editor, and all we want is to get Mr. Kind in Kentucky and we will attend to his case. The officers of the Toledo Builders' Supply Co. are: P. H. Degnan, president; A. R. Kuhlmann, vice president; J. P. Degnan, secretary-treasurer, and Richard Kind, general manager.

"The development of brick-making machinery in the last decade is something phenomenal," said A. R. Batley, of the American Clay-working Machinery Co., Bucyrus, Ohio, in a recent newspaper interview. "When I first came to America, in the '80s, the fastest machines had a capacity of but from 10,000 to 15,000 bricks in a ten-hour day, while now we are making them to turn out 100,000 in eight hours. Take in your own territory. The five plants at Coffeyville, Cherryvale, Independence and Chanute, Kan., have a combined daily capacity of over 1,000,000, and the industry in this State is but fairly started.

"American-built clay-working machines are rapidly superseding those of any other make in all parts of the world," said Mr. Batley. "We make them for all purposes, from those for the manufacture of the finest china, where 85 per cent. of the clay is washed away to free the kaolin from foreign matter, particularly iron, which destroys the glaze, to those for making the cheapest vitrified brick. Plants have been put in from Christiania to Cape Town and from London to Tokio."

Tell 'em you saw it in ROCK PRODUCTS.

The Chalk-Marl of Arkansas.

The chalk and chalk-marl deposits of Southwestern Arkansas, said Mr. Joseph A. Taff, in Part III of the Twenty-Second Annual Report of the United States Geological Survey, now in press, were first described by Mr. Robt. T. Hill in the Annual Report of the Geological Survey of Kansas for 1888, in which volume Dr. J. C. Branner, then State Geologist of Arkansas, briefly described the manufacture of Portland cement and showed that the chalk deposits compared favorably with the best English chalk as Portland cement materials. The publications of the Arkansas Survey called attention to these chalk deposits, and as a result an extensive Portland cement plant was established at Whitecliffs. This development caused greater interest in the Arkansas chalk deposits, creating further demand for information.

The chalk deposits of Southwestern Arkansas occur in a low rolling plain from the vicinity of Rocky Comfort, about fifty miles from the State line, northeastward toward Arkadelphia. It is the northeastward part of the great chalk formation which extends from Central Texas into Arkansas. The purer chalk outcrops in there separate areas, (1) at Rocky Comfort in Little River County, (2) Whitecliffs in Little River and Sevier Counties, and (3) eastward from Saline Landing in Howard and Hempstead Counties. The chalk in these areas belong to the same formation and are separated by later deposits of gravel and sand.

The pure chalk formation has a variable thickness from more than 100 ft. in the western part of the area to thin deposits in the eastern part. It occurs in the midst of fine chalky and clay marls into which it grades with gradual change. Throughout its occurrence it is well exposed and suitably located for exploitation. The Rocky Comfort chalk lies within one mile of the Arkansas and Choctaw railroad, which extends westward from the main line of the Kansas City Southern at Ashdown. The Whitecliffs chalk outcrops in cliffs and bluffs above Little River, where it is well and conveniently exposed for use in the manufacture of cement near the cement works. A branch road connects the Whitecliffs deposits with the main line of the Kansas City Southern railroad at Wilton. The Saline Landing erea lies between the Arkansas and Louisiana and West Saline River, and ten miles form the main line of the St. Louis, Iron Mountain and Southern railroad. The chalk at Saline Landing is at the head of navigation for small steamers on the Saline River and is separated from the chalk at Whitecliffs by a space of about four and a half miles.

Lying above the pure chalk of the Whitecliffs formation and separated from it by nearly 200 ft. of marls, there is a formation of chalk-marl known as the Saratoga chalk-marl. This formation occurs in three separate areas, one extending from the vicinity of Saline Landing northeastward beyond Washington, another in the region of Okolona, and a third in the Decipher Creek Valleys near Arkadelphia. This chalk marl formation resembles closely the lower and more sandy portion of the Whitecliffs chalk. This formation continues throughout its known occurrence with little variation in thickness of about forty feet.

Mr. Taff's report discusses briefly the nature of natural and Portland cements and their methods of manufacture, giving analyses of both natural and Portland cements, also of the various chalks, marls and clays in the Arkansas region which show that a considerable part of the chalk deposits in Arkansas approach very closely in composition to natural and Portland cement limestones which have been utilized in France and in the eastern part of the United States. A large part of the chalk, however, is shown to rival the purest chalks in England which have been used in the manufacture of the highest grades of Portland cement. To the pure chalk for Portland cement, it is necessary to add clays or marls carrying a large percentage of clay. Clays of the very best grades are found in the tertiary deposits lying immediately south of this region and further east along the St. Louis, Iron Mountain and Southern railroad toward Little Rock. The fine textured marls which occur here associated with the chalks are shown by their analyses to contain clays adequate when mixed with the chalk to produce a proper combination for a high-grade of Portland cement. It is evident that there is sufficient chalk and marl in the Arkansas region to produce an unlimited amount of Portland cement.

The stone quarry of W. F. O'Dea has been sold to the Horseshoe Quarry Co., St. Marys, Ont.

A contract has been secured by the Atlas Portland Cement Co., Seattle, Wash., whose offices are in New York, 30 Broad Street, for 2,000 barrels of cement for the new federal postoffice building in the City of Mexico.

Mr. Walter S. Dickey, president of the Dickey Clay Manufacturing Co., has bought 148 acres of land for the company's new Kansas plant adjoining the city limits of Chanute, Kan. They will manufacture building brick, vitrified paving brick, fire proofing, hollow brick for interiors of buildings, and farmers' tiles.

The annual meeting and banquet of the Quincy Granite Manufacturers' Association was recently held at the Quincy House, Quincy, Mass., with 130 present including the following guests invited: Senator Eugene H. Sprague, Representatives Frank E. Badger and John McKnight, County Commissioner Marshall P. Wright, Deputy Sheriff George H. Field, Postmaster Charles L. Hammond, President Chas. Alden, of the Quincy city council, John Shaw, R. F. Claflin, Horace F. Spear and A. M. Hunt. An informal reception was held and all were welcomed in a hearty manner by Mr. Miller. The committee in charge was composed of John L. Miller, William T. Spargo and Thomas F. Mannix.

Information Bureau

A Few of the Direct Inquiries Made to the Office of Rock Products During Last Month.

72.—We want boilers.

73.—We want engines.

74.—We want information relative to the equipment of a stone and cement plant; also an electric plant for a town of 1,500 people.

75.—We want a dump car for our lime plant, with a capacity of 1½ yards.

76.—We are in the market for air compressors.

77.—I want a hoisting engine.

78.—We need pumps.

79.—I want two or three carloads of black roofing slate.

80.—We want prices on wire rope.

81.—We want prices on polishing machines, and designs of monuments, curbings, head stones, etc.

82.—I would like the addresses of firms who produce cemetery memorials in glass.

83.—We want brick machinery.

84.—We are in the market for a full equipment for a vitrified, fire and ornamental brick plant, and sewer pipe plant.

85.—We need a new steam plant from 80 to 100 horse power.

86.—We are in the market for everything needed for a new cement plant.

87.—I want cement machinery.

88.—I want centrifugal pumping machinery.

89.—I need scrapers.

90.—I want screens.

91.—I am in the market for tile and gravel roofing.

92.—We want all material necessary for building and equipping a first-class, up-to-date Portland cement factory with capacity of 1,200 barrels a day.

93.—I need drills with 1½-in. round ends that will drill ¾ or 1-in. holes in Georgia marble 8x12, 420 in. long.

94.—We want rock crushers.

95.—We want silica brick.

96.—We are in the market for silica cement.

Wanted and For Sale

One insertion, 25c a line; Two insertions, 50c a line; Three consecutive insertions with no change in the composition, 50c a line. Count eight words to a line; add two lines for a head.

BUSINESS OPPORTUNITY.

THE KANSAS CITY BOLT AND NUT CO., Kansas City, Mo., desires your inquiries for bar iron, nuts and bolts, rivets, spikes, etc., and will quote favorable prices. Send for catalogue.

WANTED—HELP.

SUPERINTENDENT—A thorough and practical fire-brick man to superintend the construction of a modern fire-brick plant, and to take charge of same when finished. Unless fully competent and up-to-date in all matters relating to the manufacture of fire brick, do not answer. A splendid opportunity for the right man. Address A. H. LLOYD, Room 803, 115 Dearborn St., Chicago, Ill.

WANTED—MACHINERY.

BRICK MACHINE—Second-hand, but in good order. State full particulars to M. KILROY. Box 186, Genoa, Ill.

PARTIES who want machinery, will hear something to their advantage by sending list of exact requirements to R, care ROCK PRODUCTS.

WANTED—POSITION.

A SMALL SUM invested in a concisely-worded description of what you want *right here* will no doubt secure you numerous replies and find that desired position for you quickly.

FOR SALE—MACHINERY.

BARGAINS in new and second-hand machinery. Address W, care ROCK PRODUCTS.

BRICK MACHINE—Perfect condition, "Hummer," made by Fate Company, Plymouth, Ohio. Address WM. H. COLLINS, Norfolk, Va.

LOCOMOTIVES—Narrow and standard gauge for light or heavy work; second-hand, but rebuilt at our own shop. Address SOUTHERN IRON AND EQUIPMENT CO., Atlanta, Ga.

RESURRECT the dead capital in that machine you no longer need by inserting the advertisement here. Quick returns at a small cost. Try it.

FOR SALE—MATERIAL.

GRIT AND STONES—Send $1.50 to A. L. Simmons, Belfast, N. Y., and get a 100-lb. sample box containing 75 lbs. of "Simmons' Fine Brown Grit," that is *free from flint*, and 25 lbs. of soft, selected, coarse grit, f. o. b. Kitchen stones for knives, size 1 ft. long by 2-in. square, 50c each.

FOR SALE—PLANT.

LET US SELL that plant for you. See head of department for rates.

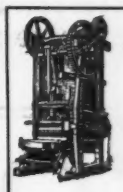
FOR SALE—MISCELLANEOUS.

HAVE you anything to sell that will probably interest a reader in ROCK PRODUCTS? Try a four or five-line advertisement for three issues—it will find a buyer.

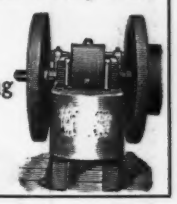
PROPERTY with a good vein of asphalt near the surface, located some distance from railroad, but railroad is being built. Address D. X., care ROCK PRODUCTS.

FOR STONE QUARRY MACHINERY
ENQUIRE OF LORD, BOWLER & CO.
CLEVELAND, OHIO.

Tell 'em you saw it in ROCK PRODUCTS.

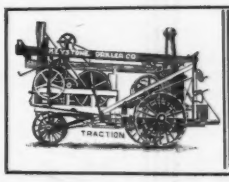


The Henry Martin Brick Machine MANUFACTURING CO., INC.
LANCASTER, PA.
ROCK CRUSHERS.
Fire-BRICK MACHINERY-Paving
CEMENT MIXERS, ELEVATORS, WHEEL BARROWS, ETC.
SEND FOR COMPLETE CATALOGUE.



STONE CUTTERS
SAVE TIME
Use Nash's Expeditious Measurer
A book containing 200 pages of indexed tables, which show at a glance the cubic contents of any stone, according to its length, breadth and depth. 1902 edition, printed from new plates. Order of your book—seller or address the publisher.
A. L. NASH,
17 State St. NEW YORK
SAVE LABOR
AVOID ERRORS

BRICK PALLETS.
We Manufacture All Kinds of
PALLETS
Made of the Best Dry Lumber.
We Make a Specialty of Foot
PALLETS
As per cut, with special Hand Hole, which have given the very best satisfaction. If you want good pallets write us for prices.
THE J. N. HAHN CO., Cleveland, Ohio.



FOR WATER, OIL AND GAS WELLS.
Soundings for Bridge Piers, prospecting for Iron Ore, testing Placer Ground, drilling Blast Holes for deep Railroad Cuts ahead of Steam Shovels, etc. Also contracts taken for drilling Wells for Railroads, Factories and City Water Works.
KEYSTONE DRILLER CO.,
BOX R. R. BEAVER FALLS, PA.

A. P. DYKE,
REPRESENTING CONTRACTORS
For Sale of the Great Oil Gushers
ON SPINDLE-TOP HEIGHTS, BEAUMONT, TEXAS.

My propositions are suitable for organization of a STOCK COMPANY or for PRIVATE SPECULATION. Title perfect. Pipe Line arrangements. No telling the immense value of one of these great 70,000 barrel daily oil spouters. Investigate NOW and you will likely buy in DUE TIME.

The oil gushers at Baku, Russia, have been gushing 15 years—they are still gushing and the land is not now for sale at any price. The same long life and enhancements, or even greater, are predicted for Spindle-Top Heights, at Beaumont, Texas. Spindle-Top gushers are as strong to-day as on January 10, 1901, when the persevering Mr. A. F. Lucas brought in the first gusher.

Can give some suggestions for plans to develop unproven home oil lands, or lands in new territory. Be careful and do not pay too much for experience.

Price will suit you. Terms reasonable. First payment on gusher in escrow under contract—no gusher, no pay.

Write and suggest your nearest convenient point to meet me and talk over same. Address me, Box 308, Beaumont, Texas, or Box 73, Hope, Arkansas.

Am frequently at Lindell Hotel, St. Louis, and this will be one suitable point to meet you.

COOPERAGE,
Staves, Heading and Hoops

In straight and mixed
carload lots for

Lime, Salt and Cement.

Shipments made from Mills located in Ohio, Indiana, Illinois, Wisconsin, Michigan, Pennsylvania.

We also Manufacture all kinds of

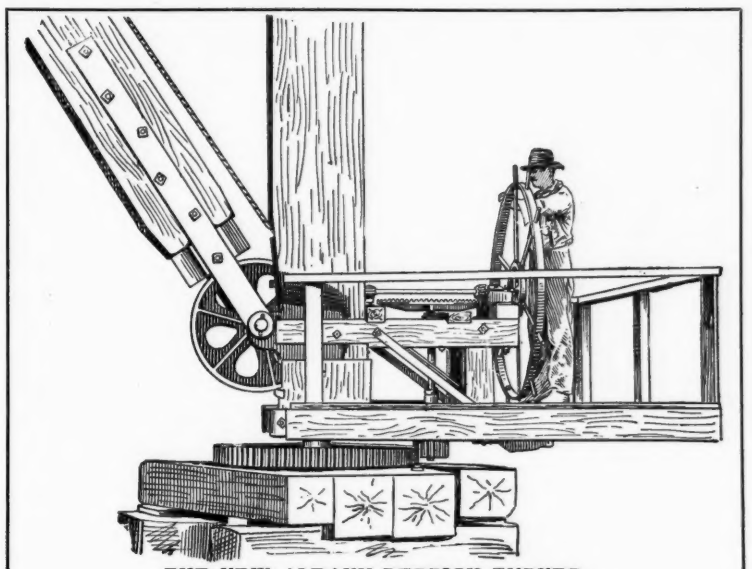
KEGS AND BARRELS

FOR

ROCK AND IRON PRODUCTS.

THE EDWIN BELL COMPANY,
PITTSBURGH, PA.

NEW ALBANY STONE-WORKING MACHINERY.



THE NEW ALBANY DERRICK TURNER.
HANDLED BY ONE MAN WITH FULL LOAD.

OUR SPECIALTIES:

Stone Planers,
Wardwell Channelers,
Screw Feed Gangs,
Steam and Electric
Traveling Cranes,
Power Hoist,
Derrick Irons,
Wire Rip Saws, Etc.

Circular Matter Furnished and Prices Quoted on Application

Mills Erected Complete, Ready to Run

THE NEW ALBANY M'F'G CO., P. O. BOX 423 NEW ALBANY, IND.

MACOMBER AND WHYTE ROPE CO.

MANUFACTURERS OF

WIRE ROPE

FOR USE IN ALL

ROCK PRODUCTS

Main Offices and Warehouse, 19 and 21 So. Canal St., CHICAGO, ILL.

Factories: COAL CITY, ILLINOIS.

HEAVY GEARED POST DRILL.

For Drilling Salt, Slate, Fire-Clay, Gypsum, Soap-Stone, Lime, Etc.; In fact any rock that can be drilled with an

AUGER DRILL.

OVER 2,000 OF THESE HAND MACHINES NOW IN USE.

Send for Catalogues and Prices.

A FEW COMPANIES USING OUR HAND AND AIR DRILLS.

RETSOF SALT COMPANY, Retsof, N. Y.
AVERY ROCK SALT MINING COMPANY, Avery Island, La.
THE GULF SALT CO., Morgan City, La.
ROYAL SALT CO., Kanopolis, Kansas.
MYLES SALT CO., New Orleans, La.
KINGMAN SALT CO., Kingman, Kansas.
ENGLISH PLASTER WORKS, Oakfield, N. Y.
GENESEE STUCCO WORKS, Oakfield, N. Y.
THE GRANITE WALL PLASTER CO., Port Clinton, Ohio.
GRAND RAPIDS PLASTER CO., Grand Rapids, Michigan.
FORRESTER PLASTER COMPANY, Port Clinton, Ohio.
ALBERT MANUFACTURING CO., Hillsboro, N. B., Canada.

We Manufacture the Celebrated Black Diamond Safety

SQUIBS.

READ THIS. MINE OFFICE RETSOF MINING COMPANY, MINERS OF ROCK SALT. READ THIS.

OFFICES: { Scranton, Pa, Connell Building. / New York, 115 Broadway.

Retsof, N. Y., Oct. 24th, 1901.

Howell Mining Drill Co., Plymouth, Pa.

Gentlemen:—Replying to your favor, asking what success we have had with your Air Drills, would say that we are now using twenty-six (26) of them and have had some in use for ten years. We find repairs very light, the drills giving *good satisfaction.* We have experimented with a great many other drills and consider your drills the most satisfactory for our purpose.

Yours truly, D. HYMAN, *Gen'l Supt.*

ESTABLISHED 1878.

HOWELL MINING DRILL CO., - Plymouth, Pa., U. S. A.

ANYBODY

With an ax or a butcher-knife could cut off your arm or your leg, and do it very quickly at that, and yet all are agreed that none but a carefully learned and long practiced surgeon should be trusted in any such an emergency.

WHEN IT COMES TO THE

CATALOGUE

OF YOUR BUSINESS

The printer should be selected with the same care as your surgeon, because a poorly printed catalogue is a *business cripple* in every sense of the word—you know that. We make catalogues to build up business. Our services cost no more than the *quacks* of our craft are charging.

THE FRANKLIN PRINTING CO.

INCORPORATED.

430-432 W. Main St., LOUISVILLE, KY.

ROCK PRODUCTS.

Just One Dollar

Pays for 12 Months' Subscription.
Send YOURS in early.

THE FRANCIS PUBLISHING CO.,

Columbia Building. **LOUISVILLE, KY.**

Tell 'em you saw it in ROCK PRODUCTS.